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In-Patient Dietary Instruction and the Hospital Setting[1]

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DIETARY INSTRUCTION of patients proceeds in some hospitals as part of the normal work flow, in a manner that dietitians regard as adequate and that presumably meets the needs of patients requiring instruction in modified diets. In many hospitals, however, the whole matter of dietary instruction seems to be plagued with frustration for dietitian and patient alike. Why should the latter situation prevail?

Responding to a questionnaire cited below, some dietitians feel that the root of the problem lies in an unfavorable personnel-workload ratio. They argue that when the dietary staff has too few qualified dietitians who are expected to do too much in too brief a time, something is bound to suffer; that something is frequently dietary instruction. Certainly, this argument is not without foundation; simple arithmetic indicates that in some hospitals the volume of work is obviously too great for the size of the dietary staff.

Nevertheless, it is by no means certain that increases in staff or decreases in workload would of themselves produce significant improvements in quantity and quality of dietary instruction. The argument that they would do so rests on the assumption that the dietary department is in reasonably good control of the patient-teaching situation. This assumption may be questionable. Let us take a fresh look at in-patient dietary instruction and its total setting, not limiting ourselves to the dietary department or its personnel-workload situation. Where should we begin?

The Hospital Setting

The beginning, for present purposes, is the *hospital*. For all its emphasis on specialized techniques and equipment, the hospital is at core a collection of human beings, organized according to given patterns of administrative and professional arrangement, for the purpose of doing various kinds of work. The primary and unifying work purpose is, of course, patient care.

Smith (1), Wessen (2), and Burling and colleagues (3), among others, have carried out studies on the social structure of general hospitals. The paragraphs that follow draw freely on their work, particularly on that of Smith. In examining certain aspects of the social structure of the hospital, we take as the type-case the 200- to 400-bed general hospital under voluntary or municipal sponsorship. The aspects selected are: the split-authority system, departmental and interpersonal relationships, the unique status of the physician, the dual role of the dietary department, and the contrast in the dietitian's relationships with in-patients and out-patients.

THE SPLIT-AUTHORITY SYSTEM

Many of the hospital's services are subject to *dual lines of authority*—one the formal and acknowledged control of administration, the other the less formalized but insistent authority of the physician. The immediate implication of the split-authority system is that dietitians and many other personnel continually face the same dilemma: who is *really* the boss?

DEPARTMENTAL AND INTERPERSONAL RELATIONSHIPS

There is a strong tendency for the various professional services to consist of discrete levels or

[1]Presented at the 40th Annual Meeting of The American Dietetic Association in Miami, on October 23, 1957. This paper is an outgrowth of Diet Therapy Project, No. 2, 1956-57, "Methods of Strengthening the Dietary Instruction of In-Patients." The assistance of the Project Chairman, Sybil D. Kaplan, particularly in preliminary consultation, is acknowledged.

[2]The author wishes to express appreciation to Elizabeth K. Caso, Chairman, Diet Therapy Section, The American Dietetic Association, for her multiple contributions in the preparation of this paper.

compartments, with little mobility of personnel between them. For example, rarely does anybody begin as a technician and end up on the medical staff. Nor is there much lateral movement; few begin their hospital careers as nurses and later transfer to, say, the dietary department. The system tends to produce rather formalized interpersonal relationships between different professional levels and promotes sharp awareness on all sides of relative social status. As a result of the foregoing, the problem of how to obtain an effective flow of communication throughout the system is frequently difficult to solve.

UNIQUE STATUS OF THE PHYSICIAN IN THE HOSPITAL ORGANIZATION

Consider the place of the physician in the hospital system. It is unique in two respects. First in large organizations for work purposes the person with prestige and authority usually functions at a distance from the production line. In the hospital, however, it is precisely the worker high in prestige and authority—the physician—who performs the actual laying-on-of-hands at the "production line" of patient care. Other personnel do much direct work with patients but only insofar as their services are auxiliary to and sanctioned by the physician. Described as the "captain" of the patient-care team (4), the physician may aptly be thought of also as the "gatekeeper" to the in-patient, i.e., the one who controls and legitimizes access by other workers to the patient.[2]

Second, while the physician is a key figure in the hospital, he is also a peripheral one. Dietitians and other professional workers are *employees* of the hospital; they usually work there full time and tender the hospital their occupational allegiance. The physician, by contrast, is present as an invited *guest*, tends to utilize the hospital as a part-time extension of an outside practice, and usually maintains his strongest bond not with the hospital as such but with the other key hospital guest—the patient. Certainly, since physician and professional employee of the hospital share the same ultimate goal—that of furthering the patient's welfare—there can be an effective and mutually satisfactory team-relationship. Commonly, however, an effective team-relationship—with all it implies regarding two-way interplay between workers—fails to develop. Its development is hampered, for one reason among others, because of the physician's unique status. Although the acknowledged *captain* in the patient-care situation, he is more often *absent* than present; furthermore, even when *in* the hospital, he is not *of* it.

[2] The physician's role as gatekeeper is particularly in force in the instance of the in-patient who is the type-case throughout this paper; i.e., one under the care of his own physician.

DUAL ROLE OF DIETARY DEPARTMENT

Turn now to the dietary department and to the fact that it occupies an anomalous position in the hospital. McGibony, writing on hospital administration (5), wonders whether a discussion of dietary service "should be within the realms of management or clinical services" and decides that it belongs equally in both. Virtually all departments have their primary functions *either* in the area of hospital management or in that of patient care. The dietary department is a notable exception; it has major responsibilities in *both* areas. It is in charge of food service—a management and housekeeping function—and is also responsible for dietary instruction—a professional or patient-care function.

Two questions arise from the fact that the dietary department straddles both areas. First, to what extent do food service functions dominate and crowd out dietary teaching aspects? Second, even where dietary teaching receives full emphasis within the department, does the dietitian become so identified by the hospital at large as a food service person that her effectiveness in dietary instruction becomes impaired? More study is needed of both matters.

IN-PATIENT VS. OUT-PATIENT SETTING

Several dietitians, in conversation with the author, have observed that the whole process of dietary instruction proceeds far more smoothly in the out-patient clinic than within the hospital. Why should this be so? We suggest that it is due in large part to two sorts of differences in the sociology of the respective settings—the number of roles the dietitian is obliged to play, as well as the ways in which her relationships with patient and physician are structured.

Take the *number of roles* the dietitian performs. When dealing with in-patients, as previously noted, the dietitian must carry out at least two roles—one in "food service," the other in "dietary instruction." In the out-patient clinic, however, the dietitian need wear but a single hat—that of specialist in dietary instruction. Hence, the latter is freed of a complication in her contacts with patients and other workers that the dietitian in the in-patient situation is unable to avoid.

The *structure of dietitian-physician-patient relationships*, is diagrammed in an admittedly oversimplified way in Figure 1. In both settings, the physician, of course, plays the key role. The essential difference, however, is that the in-patient receives dietary instruction within the framework of a doctor-patient relationship, while the out-patient enters what more nearly approximates a team-patient relationship. Stated differently, the dietitian's contacts with the in-patient are mediated by the physician; in the out-patient case, her relation-

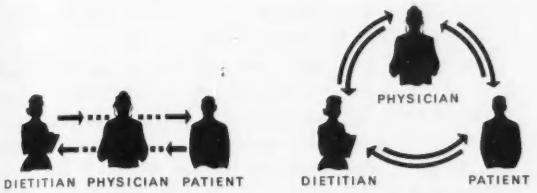

FIG. 1. *Structure of dietitian-physician-patient relationships in the in-patient and out-patient settings.*

ships with both patient and physician are more direct.

In-patient and out-patient settings in many hospitals differ as well in demographic characteristics, although the implications of these differences for dietary instruction have apparently not been studied. Thus, although Blue Cross and similar plans have broadened the social-class range of in-patient populations, it is probably still true that in-patients, particularly in voluntary hospitals, are drawn from higher socio-economic and educational levels than are out-patients, and often differ in their ethnic composition. Furthermore, while out-patients often tend to come from the local community, even from the immediate neighborhood of the hospital, in-patients usually represent a wider geographic spread.

Dietary Instruction

What is dietary instruction? It is the direct communication between a dietitian and a patient for whom a physician has ordered a modified diet; its purpose is to have the dietitian help the patient to understand and accept his diet. From another perspective, dietary instruction is more than this; it is also one event in a sequence of events in which physician, nurse, patient, and dietitian are directly involved.

Details vary from one to another hospital; in general, however, the dietary instruction sequence seems to be about as follows. It begins with a physician's order for a modified or therapeutic diet for a given patient. The order may read "1400 calories" or "sodium restriction—500 mg." or the like. The order, usually a written one, goes to the nurse, who transmits it to the dietitian. The dietitian works out a meal plan on the basis of the dietary prescription, sets up a chart to insure that the patient receives the appropriate diet, and communicates a variety of instructions to subordinate food service personnel.

Unfortunately, in many hospitals, the cycle must then be repeated before the dietitian subsequently contacts the patient for instruction in regard to his modified diet. That is to say, the physician orders dietary instruction; the nurse transmits the order to the dietitian; the dietitian then arranges to have a session with the patient.

In some hospitals, both sequences are collapsed into a single one, a variation that tends to facilitate the dietitian's teaching role. That is, the physician's initial order for a modified diet includes a written or tacitly understood order for dietary instruction. This permits the dietitian to arrange to teach the patient without the need to wait for a specific order to do so.

Most commonly, however, the diet-order and instruction-order sequences occur separately. When they do, the order for dietary instruction frequently reaches the dietitian late in the patient's hospital stay, and we note the emergence of an abomination —the so-called "discharge diet." We reserve the discharge diet for later discussion.

Questionnaire on Problems in Dietary Instruction

In May 1957, as part of the present study, a questionnaire was formulated by the author at the request and with the aid of Elizabeth K. Caso and Sybil D. Kaplan. Material presented thus far has suggested what the problems of dietary instruction in the hospital setting are "on paper," as it were. The purpose of the questionnaire was to gather information from dietitians as to what problems are, in fact, being encountered.

Chairmen of Diet Therapy Sections in eight states[4] were asked to assume responsibility for distribution of questionnaires. Fifty dietitians received the questionnaire, and thirty-five responded —a return rate of 70 per cent. Respondents come from the eight states noted and represent thirty-two different hospitals ranging in bed capacity from 90 to 900 beds. Numbers of dietitians on hospital staffs vary from one to fourteen. The sample of dietitians was deliberately kept small, and no assumptions are made as to its representativeness of hospitals or hospital dietitians throughout the country.

The major item requested was a description, in narrative form, of "the problems you encounter in getting together with the patient for dietary instruction." Respondents were also encouraged to specify, if they wished, how in-patient dietary instruction in their respective hospitals seemed to be affected by the following:

(a) Hospital schedules.
(b) The nurse.
(c) The physician.
(d) Patients' concepts of the role of the dietitian.
(e) Dietitian's attitude toward patient contacts[5].
(f) Attitudes of administration toward patient education.

[4] California, Colorado, Delaware, Indiana, Minnesota, North Carolina, West Virginia, and Wisconsin.

[5] Responses to this item were too few to merit analysis and are not discussed in this paper.

Discharge Diet

Of the thirty-five respondents, twenty-five, or 70 per cent, referred to the "discharge diet" and did so, unanimously, with disapprobation. The volume of response was significant, as was the unanimity, in that the discharge diet was not a topic on which the questionnaire attempted explicitly to solicit comment. Most remarks on the discharge diet occurred in response to items on the effects of hospital schedules and the role of the physician.

What is the discharge diet? First, let us settle what it is not. It is not something one finds described in diet manuals or in standard texts on diet therapy; it is neither a specific diet nor a method of teaching. In a word, it is not an entity of any sort within the formal body of knowledge and methods shared by the dietetic profession.

To suggest a definition on the basis of respondents' comments: the discharge diet is dietary instruction performed at the conclusion of the patient's hospital stay, i.e., just prior to discharge. It is apparently something that dietitians learn to do—and to censure—as part of the informal and unwritten "on-the-job" aspects of their work.

The discharge-diet sequence goes about as follows. A patient on a modified diet is awaiting discharge, and the physician orders dietary instruction. The nurse receives the order and transmits it to the dietitian. Sometimes, the dietitian is then able to complete her current task, contact the patient, and still have time to provide adequate dietary instruction before the latter is discharged.

Most of the time, however, respondents said that the whole sequence is compressed and accelerated. The dietitian, notified just prior to the patient's discharge, must abandon what she is doing to hasten to the patient; the latter and his relatives are ready to leave or are thinking of a host of other things; and under these unfavorable time-place-person circumstances, the dietitian attempts to instruct the patient. Understandably, the discharge diet tends to be a frustrating experience for the dietitian and one of limited value to the patient.

Hospital Schedules

Nearly every respondent who addressed the issue of time or schedule factors reported that there is an insufficient supply of personnel-time to do adequate dietary instruction. When the comments of respondents were analyzed, it appeared that dietary instruction tends to fall victim to two systems of schedules. One is the smaller schedule of the dietary department; the other, the larger schedule of the hospital.

Schedules within the dietary department limit the dietitian's activities in teaching. The general pattern seems to be one in which food service aspects of the dietitian's role exercise insatiable demands on her time and dietary instruction aspects tend correspondingly to be sacrificed.

The larger hospital schedule, taking the patient's day as the point of departure, is a complex and crowded time-pattern into which tests, treatments, various consultations, meals, visiting hours, sleep, and so on must somehow to be fitted. When the patient's hospital stay is brief, the entire schedule becomes accelerated and even more crowded. To a large extent, the physician determines the components of the time-pattern; he is the one who orders diagnostic tests, forms of therapy, and so on. The nurse acts as the time-keeper or manipulator of the schedule. The patient also exercises a variable but limited measure of control over the allocation of his time.

The dietitian is left in an unenviable position in regard to access to the patient's day. Within the prevailing time-priority system, the dietitian must figuratively take her place near the end of a line of people waiting their turn at the patient. The dietitian may have the responsibility to convey her services to the patient but lacks the authority to insert herself into the patient's day at a time convenient to herself. Indeed, even when acting on orders from the physician and having cleared an appropriate time with the nurse, the dietitian occasionally learns at the last minute that the time for her appointment with the patient has been preempted.

Physician, Nurse, Administrator, and Dietary Instruction

THE PHYSICIAN

Physicians hinder rather than help the cause of adequate dietary instruction, according to twenty-seven respondents, or 77 per cent. Of the remaining eight respondents, six indicated that physicians they work with are helpful and cooperative, and two did not comment.

The chief complaint—cited by eighteen respondents, or 51 per cent of the total—was that physicians are at fault for the discharge diet. One dietitian's comment, typical of many, is that because of the delinquency of physicians in ordering dietary instruction, "we are notified just before the patient is ready to leave that instruction is necessary and the patient is busy thinking about pills, clothes, and so on, instead of the diet."

Ten respondents, including some of the above, mentioned that physicians also hamper effective dietary teaching in other ways. After prescribing a modified diet, the physician may fail to explain the purpose of the prescription to the patient; worse, he may even neglect to inform the patient that a modified diet has been prescribed. The dietitian is then left to deal with a patient who is unprepared for the dietary change and uncertain as to

its meaning. Operating without the physician's legitimization of the modified diet, the dietitian may become the focus of the patient's anxiety, irritation, or active displeasure. In addition to making the dietitian's lot a less happy one, the physician's failure to brief the patient in advance places in jeopardy the acceptance of the diet and the effectiveness of the diet therapy.

Akin to the matter of the physician telling the patient too little is another, mentioned by six respondents, that of telling him too much. In a private conversation with the patient, the physician may "give in" and tell him he may eat certain items explicitly not allowed on the prescribed diet. The physician, however, may fail to inform the dietitian of his concession, and the latter soon finds herself in an untenable position in regard to the patient and his diet.

Four respondents commented on physicians ordering diets which are technically faulty or practically unfeasible. Thus, one dietitian cited an order calling for a "low-cholesterol diet with ice cream." Another mentioned orders that come through for "low-calorie diets which are not adaptable to the working and home conditions of the patients."

THE NURSE

Responses regarding the doctor's role in dietitian-patient relationships tended, as we have seen, to be weighted on the negative side. General opinion concerning the nurse's role, by contrast, was much less one-sided. About half the respondents saw the nurse as playing a generally positive role, while the other half referred to her in noncommittal or negative terms.

Typical of positive comments are the following: "Nurses are helpful in letting us know when a patient is unhappy with his diet." "Nurses explain when they can things about . . . peculiarities of patients' likes, dislikes, and food habits." Negative comments were also made: "Both the nurses and aides seem not to realize the importance of diet therapy and disregard dietary orders if a patient asks for mid-meal snacks . . ." "Nurses side with patient if food is bad, knock the dietary department when mistakes are made, or emergencies arise."

The point that emerges is that respondents viewed the nurse as functioning in a middle-man or intermediary role vis-a-vis dietitian and patient. This holds true whether the respondent had positive or negative things to say about the nurse. Those who commented in positive terms tended to see the nurse as a good intermediary, i.e., as one who facilitates two-way communication between dietitian and patient. Those who made negative remarks tended to view the nurse as using her intermediate position to hamper any effective dietitian-patient interchange.

THE HOSPITAL ADMINISTRATOR

The picture provided by questionnaire responses is one in which hospital administration is, in general, sympathetic to patient education. Of the twenty-two respondents who commented on the topic, nineteen reported that their hospital administrators are interested in encouraging patient education, and only three respondents mentioned administrators who lack such interest.

At the same time, our sample indicated that favorable attitudes or policies on the part of the administrator do not necessarily result in a favorable situation regarding patient education. That is, most of the dietitians who reported their administrators to be sympathetic in this area also indicated that dietary instruction proceeds with frustration and difficulty. Indeed, it would seem that the cooperation of physicians and nurses is more crucial in determining the fate of patient education than is that of administration. However, the questionnaire data suggest that whereas favorable attitudes from administration may not help patient education, unfavorable or distinterested ones almost certainly hamper.

Among administrators reported as encouraging the dietitian's teaching role, two ways of defining that role apparently occur. One way seems to be pretty much in line with the dietitian's view, i.e., dietary instruction as part of a broad *patient-care* orientation. The other sees the dietitian's educational functions more in terms of a hostess or public relations perspective. That is, the administrator regards the dietitian as a hostess for a large eating establishment and feels that the aim of her contacts with "customers" is to boost their morale and help them have pleasant and happy thoughts about the hospital.

Patients' Concepts of the Dietitian and Her Teaching Role

We begin with some general observations. In terms of the array of professional roles that occur in our society, the role of the dietitian is a relatively unfamiliar and esoteric one. The man in the street ordinarily has little need or opportunity to learn who the dietitian is or what she does. Even in the circumstance of hospitalization, many patients have no occasion to distinguish the dietitian from other personnel or to identify her special functions.

At the same time, while the dietitian's role tends to be unfamiliar to patients, her subject matter—diet—is in a sense too familiar. The patient may know little about his dietary needs; however, shifting our universe of discourse slightly, he knows a great deal about his food. In other words, the dietitian operates with technical knowledge in an area overlapping with one in which everybody has intimate lay knowledge.

To go on, even when the patient grants that the dietitian speaks as an expert on dietary matters, he may not regard her as the *only* or *best* dietary authority. From where the patient sits, the physician and nurse, no less than the dietitian, are perfectly legitimate authorities on such subjects as modified diets.

These three matters—the unfamiliarity of the dietitian's role, the believed familiarity of her area of technical competence, and the assumption that, if an authority, she is but one of several in the area—have the effect among lay people of diluting the validity of the dietitian's teaching role.

Let us now turn to the questionnaire. In general, the pattern of response suggests that when patients are not knowledgeable about the dietitian, they redefine the dietitian's role in terms that "make sense" to them even if such definitions make no sense of the dietitian's actual role.

Of course, in order to learn how patients perceive the dietitian, one should go to patients and ask them. The questionnaire, addressed as it is to dietitians, asked a somewhat different question. It sought to learn what dietitians think patients think of them. The latter, a wholly legitimate inquiry in its own right, is not to be construed as a substitute for putting the question directly to patients.

Nine respondents, or 26 per cent, believed that patients seem to have fairly correct understandings of the dietitian's role. An additional twelve respondents, or 34 per cent, made either no statement or a noncommittal one on the topic. However, the largest single group—fourteen respondents, or 40 per cent—reported that patients entertain a variety of misconceptions of the dietitian's role.

Let us deal with responses made by the latter group. Patients appear to redefine the dietitian's role in one or more of four different ways. Because the dietitian is seen as associated somehow with food and the kitchen complex, some patients are said to define her as a species of the genus *cook*. For other patients, the dietitian is seen as a *nurse*, possibly because of correspondences as to sex, age, dress, and other criteria. Both images frequently have favorable connotations for patients, i.e., they may *like* cooks and nurses and may therefore extend the cover of their positive feelings to dietitians.

Both of the remaining two images, however, tend to have exclusively negative associations. Some patients see the dietitian as usurping part of the role of the *physician;* this seems to arise mainly from the belief some patients hold that the dietitian is the person who actually prescribes the modified diet. Finally, some patients define the dietitian as a sort of *mess sergeant,* especially a depriving or denying one who overrides the patient's likes and dislikes.

Much more than academic interest attaches to whether the patient shares the dietitian's definition of her role, or whether he redefines her in terms of such roles as cook, nurse, non-legitimized physician, or mess sergeant. The foregoing images certainly influence the kinds of *expectations* patients have in regard to dietitians, which in turn have consequences for the course and outcome of dietary instruction.

Implications and Conclusions

The precept that the dietitian, to teach effectively, must *start with the patient as he is,* with his particular pattern of understandings, motivations, and cultural characteristics, is a wholly valid one that is implicit in papers by a number of previous authors. Among the latter are Babcock (6), Brener (7), Brownfain (8), English (9), Mead (10), Pumpian-Mindlin (11), White (12), and Young (13).

The present paper emphasizes a different but concordant point, i.e., that one must also *start with the hospital as it is.* Thus, at first glance, in-patient dietary instruction appears to be a matter of a relationship and communication between dietitian and patient for the purpose of interpreting a prescribed diet. Under more thorough scrutiny, as Vivian (14) indicates, complications are disclosed. The tone of the relationship established between dietitian and patient and, indeed, the very possibility of the dietitian establishing more than fleeting contact with the patient are matters over which the dietitian has only partial control. Dietary instruction gets caught up in the social structure and value-systems within the hospital; what physician, nurse, administrator, and others do or fail to do have important effects on the dietitian's teaching role.

The so-called discharge diet is a stark illustration of the need to take the larger hospital setting, rather than solely the dietitian-patient relationship, into account. Indeed, an apt subtitle for this paper might be: "an inquiry into the causes of the discharge diet." There are strategic reasons for paying special attention to the discharge diet and its causes. For one thing, the discharge diet appears frequently to be the means through which the greater part of dietary instruction is given. For another, it is the Gordian knot of the entire dietary instruction issue. It reveals in a single, intricate complex the inter-relationships of hospital social structure, the mechanics and organization of dietary instruction, and the training and orientations of physicians, nurses, and dietitians.

CAUSES OF THE DISCHARGE DIET

What causes the discharge diet? That is, what leads to dietary instruction being given under unpropitious circumstances and with doubtful adequacy at the discharge point of hospital stay? Many respondents to the questionnaire seemed to feel that there is a single cause—the tardiness of the physi-

cian in initiating orders for dietary instruction. (Some dietitians also suggested that the nurse's possible delays in transmitting the physician's orders to the dietitian may be a contributing cause.) If single causes are to be sought, however, one might conclude on the basis of the same facts that the dietitian is really the one at fault. Why, the outsider might ask, doesn't the dietitian simply contact the physician, inform him of the unfortunate consequences of late orders for dietary instruction, and attempt to impress him with the need for earlier orders? Since dietitians appear ordinarily not to do this, the outsider looking in might easily conceive of the dietitian's default as equally a cause of the discharge diet.

However, just as one over-simplifies in placing the blame for the discharge-diet complex with the physician or nurse, so it is an over-simplification to make the dietitian the culprit. The hospital situation is so structured, with its traditional patterns of authority and status, that the dietitian tends to be effectively inhibited from "simply" discussing with the physician his possible sins of omission or commission.

CAN THE DISCHARGE-DIET COMPLEX BE REMEDIED?

Patterns and relationships that are made by people can be modified by people. The discharge-diet complex is a case in point. Although it originates in the social structure and priority system of the hospital and tends to be anchored to them, possibilities are present, at least on paper, of effecting positive changes.

Earlier, we noted that in many hospitals, an initial cycle of communication between physician, nurse, and dietitian runs its course in order to provide the patient with his therapeutic diet. Later, before the patient can receive dietary instruction, a second cycle covering the same route must be repeated.

In some hospitals, however, when the patient's diagnosis permits, the respective cycles are combined into a single one, with the order for dietary instruction tacitly or explicitly accompanying the order for a modified diet. The suggestion is that the latter procedure facilitates earlier dietary instruction and thereby minimizes some of the more objectionable features of the discharge diet. But why should one sequence carrying two orders have more favorable consequences than two sequences, each bearing one?

It might be answered in this way. Even though the two cycles noted above duplicate each other in terms of sequence and route of communication, there is nevertheless a vast difference between them. The difference is that they belong to wholly distinct universes of priority.

Take the order for a therapeutic diet. It has high and even urgent priority for two reasons. As a form of therapy, some of the "emergency" quality of medication rubs off on it. In the second place, the patient must eat. Both factors generate an insistent pressure to process the dietary order quickly.

Now consider the order for dietary instruction. Although a part of patient care, it falls within that sector of it known as "patient education." As a result, in terms of the system of priorities that prevails within the hospital, it lacks the urgency and pressure which provide motive power for processing the dietary order. Furthermore, when moving on its own power, i.e., unattached to the dietary prescription, the order for dietary instruction may suffer delays and lapses at any point along the course from physician to nurse to dietitian to patient.

The argument advanced here is that when the order for instruction is issued simultaneously with that for the modified diet, the former becomes attached to a higher-priority communication, reaches the dietitian earlier, and *reduces the inevitability* of the discharge-diet complex.

Two points need to be kept in mind. First, established patterns and routines, in the hospital as anywhere, tend to be resistant to change. It follows that difficulties should be expected to attend efforts to train physicians and enlist the cooperation of nurses in combining rather than separating orders for instruction with those for modified diets.

In the second place, even if orders for instruction reach the dietitian earlier in the patient's hospital stay, this of itself constitutes no guarantee that early and adequate dietary teaching will be done. It merely helps to insure that a greater measure of control over the patient-teaching situation is placed within the dietitian's hands. What she does with her enhanced opportunity for adequate dietary instruction is more squarely up to her.

Summary

This paper examines in-patient dietary instruction as an activity involving physician, nurse, dietitian, and patient and carried on in a characteristic social setting—the hospital. Features of the hospital social structure with special bearing on patient education and the role of the dietitian are reviewed.

Questionnaire data provided by thirty-five hospital dietitians from eight states on the problems of dietary instruction are presented. Material is discussed on the "discharge diet," i.e., dietary instruction occurring under adverse time-place-person circumstances at the conclusion of the patient's hospital stay. Data are also presented concerning the effects on dietary instruction of the physician, nurse, and administrator, and of the patient's concepts of the dietitian.

The implications of the fact that orders for dietary instruction tend to carry a lower value within the hospital priority-system than do orders for the therapeutic diet are discussed. These implications

are the basis for suggesting possible means of minimizing the more objectionable features of the discharge diet.

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Principles of Learning

The past quarter of a century has seen new theories of learning emerge; it has also ironed out many differences among these theories. A dynamic theory of learning has emerged following the impact of a series of developments including the Gestalt and field psychologies, Freud's contributions to the dynamics of personality, studies in motivation and the work of Mead, Benedict, and others in understanding the influence of the social structure on various drives. For clarity and emphasis, five areas or "clusters" of principles of learnings may be described. These are not discrete, and overlapping is obvious.

AREA I—Learning takes place more readily when emphasis is placed on the individual.

A. Each individual is a unique person with different hereditary, home, and social background.

B. The purposes of different individuals differ, yet they must be recognized.

C. The individual should participate in planning ways of accomplishing *his* goals.

AREA II—Learning tends to occur as emphasis is placed on the learner's perception of tasks to be accomplished.

A. Each individual has his own perception of the task.

B. The learner's perception of a task often differs from that of the teacher.

C. The leader facilitates learning through creating a readiness for the fulfillment of important tasks.

D. All teachers (or a team representing different subjects or fields) should coordinate their efforts.

AREA III—Learning is facilitated as emphasis is placed on human relations factors.

A. As emphasis is given to feelings, anxieties, concerns, questions, problems of the learner, a setting is being created for growth.

B. Belongingness and security are basic to maximum learning.

C. Permissive leadership fosters learning.

AREA IV—Learning is facilitated as the learner is involved in an active way.

A. Learning is an active process.

B. Leadership should help students clarify goals, plan, experience, try out, explore, manipulate.

C. As learners assume responsibility, growth is extended.

AREA V—Learning is facilitated as emphasis is placed on the wise use of materials and resources.

A. The use of a variety of appropriate materials contributes to the effectiveness of learning.

B. The teacher is but one resource; there are many "people, places, and things" in the local environment which, if carefully used, contribute to the learning operation.—*Dr. Robert S. Fleming, School of Education, New York University, speaking before the Nutrition Education Conference, April 1 to 3, 1957, in Washington, D. C.*

Group Discussion in Changing Food Habits[1]

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GROUP ACTIVITY in social, business, educational, and therapeutic settings is continuing to be the focus of considerable interest. The processes of communicating, learning, and changing behavioral patterns by group discussion in the field of nutrition are especially important in the attempts to disseminate new concepts and change old food habits in vast numbers of people. The purpose of this paper is to evaluate the way in which group discussion has been used in the field of nutrition and to point out the manner in which it can be most effectively used by the nutritionist.

Although first tried in an effort to reach more patients with a minimum of time and personnel, it was soon discovered (1) that group discussion often showed an advantage over individual instruction. During the last fifteen years, various types of group discussion have been tried in attempting to change food habits in infant feeding, with pregnant women, with obese patients, and in other modifications of normal diet (2, 3). Some of these have been successful and some not. The reasons for this may be made clearer by briefly reviewing the other methods of dietary instruction, the structure, aims and goals, common resistances, and the leadership of the successful discussion groups.

The other important methods used in attempting to influence dietary patterns are the individual interview and the lecture. The individual interview has the advantage of a closer relationship and the possibility of tailoring the material to fit the patient. Often, however, the close relationship will itself become the major difficulty when the nutritionist is seen as an authority who is restricting pleasure and denying individuality. Thus rebellion and resistance become the prime effort of the patient. The lecture method also brings up the problem of resistance to authority.

As indicated by Bergevin (4), the quality of learning in a group is improved by participation because the dependence on the lecturer is reduced and the individual responsibility is increased. This resistance in the form of rebellion against seemingly authoritative attitudes is an outstanding feature of the difficulties encountered, but participation in a group discussion reduces this since the group itself becomes the authority with its own point of view.

Composition of the Group

The make-up of the successful groups is one factor to be appraised in order to determine the optimum type and number of persons involved. The need for having a group with some similarity of problem is apparent, but in addition there must also be some general motivation to alter the existing behavioral pattern. Resistance to change is said to be primarily a motivational problem (5). With discussion in the group as one main aim, the number of members must be considered, with the realization that discussion and change in consensus becomes more limited as the group becomes as large as ten to twelve members (6). The personnel must be considered more specifically in changing of food habits since the discussion must reach the person who controls the food, usually the mother (1).

Since our aim is discussion and our goal is change of food habits, the criteria of success depend on how much change is necessary to reach the desired goal. Expectations of extensive changes usually only lead to frustration of the experimenter, and important successes have occurred only when the goal was well circumscribed rather than a major change in habits. Since the major resistance to change arises from emotional conflicts, group education to new ideas or alteration of habits with minor conflictual attachments will meet with greater success. When the contemplated change involves more important emotional factors, and especially when the core of the problem is unconscious, the goal becomes a psychotherapeutic attempt and success is more difficult. Treatment of obesity, for example, has shown success only in re-

[1] Presented at the 40th Annual Meeting of The American Dietetic Association in Miami, on October 23, 1957.

stricted circumstances because the contemplated changes in habits involve many of the basic adaptive patterns of the people involved (7, 8).

In a general way, education here differs from treatment in that new ideas are being introduced that are not involved in emotional conflicts and can be handled in a conscious, intellectual fashion. Treatment often does not deal with new ideas but attempts to alter adaptive patterns by dealing with conflictual attitudes toward the old ideas while shedding light on unconscious impulses and attitudes. The briefer educational goal may be reached in one or two meetings, while treatment with its more extensive goals may require many meetings. Success would naturally be greater in the less complex procedure with its less extensive goal.

The Leader

The aim of having a discussion is relatively more simple than the goal of a change in food habits by the participants. The resistances to this aim are overcome by having a small group and introducing the meeting with an adequate explanation of its purpose.

The actual leadership is the major factor in succeeding in this aim. In encouraging or stimulating the discussion by all members of the group, a feeling of personal security by the leader is necessary and the ability to let others discuss his subject is of greater importance than his actual knowledge. Many leaders find it simpler to lecture and keep the audience seen and not heard. The impulse to be authoritarian or superior to the group may be difficult to overcome, but if this attitude persists, the lecturer may be the only one benefiting. This attitude often indicates his feeling of insecurity which is denied by demonstrating or flaunting his knowledge.

The value of his knowledge comes into play mainly in directing the discussion toward the most profitable channels. However, he should always keep in mind that the content of the discussion is not the only factor which leads to the desired goal of change. The participation in the discussion by each person is a factor in the formation of the final group consensus and adds to the individual motivation.

Blocks to Changing Food Habits

There are many blocks in the path to the goal of changing food habits, some of which are related to change generally, but some of which are peculiar to food. Primary in these blocks or resistances is the general inertia of any mass, often seen here as a fear of any pattern of behavior other than the old familiar one. Lack of understanding or communication is quite general but can be overcome by explanations. The rebellion against authority and the fear of being deprived of personal initiative is handled by the group discussion, the non-authoritative attitude, and the individual decision to adhere to the group consensus.

In the field of nutrition, the first resistance is coupled with that horrible word "diet" and the depriving dietitian. The giving of food is taken for granted, and the nutritionist is mainly noticed when she takes it away. This is the clue to the really important resistance met in this field. We are dealing with a basic need, part of self-preservation which has often been threatened by the fear of real or fantasied starvation. It takes more than a little reassurance to induce a person to change a pattern of life that to him has successfully warded off starvation and death. Unconscious conflictual attitudes of this sort are often seen in obesity and account for the difficulty of achieving success in treating obese patients. This is true in group as well as individual treatment.

Leadership in group activity attempting to deal with these deeply-bound emotional patterns requires considerable understanding of individual and group dynamics (7). This makes success more difficult for the nutritionist, no matter how much knowledge she has in her field, unless she has assistance or extensive ancillary training.

Project in New Orleans

The project now in progress at Sara Mayo Hospital in New Orleans is based on the criteria which appear to be most successful in changing food habits through group discussion. The goal is to improve the food habits of a group of pregnant women. Although there are both primiparas and multiparas, ages range from seventeen to thirty-eight and educational attainment varies considerably, the similarities are many. All of the women are from a low-income group and mainly the middle or lower-middle class social level. The interest is generally high, and the motivation to learn is good. These women are all the food preparers in their homes. Since the goal is not extensive, groups meet only once, and deeper psychodynamic problems are avoided. The groups range in size from three to eight persons, and the leader is a well qualified nutritionist with experience in teaching individually and by lecture.

To summarize, the use of group discussion by the nutritionist for the purpose of changing food habits would seem to be most effective when the divergence from the following criteria is kept at a minimum: similarity in make-up of the group, good motivation, reaching the one in charge of food preparation, basically an educational purpose with no psychotherapeutic goal, one or two meetings, a small group, and a leader with personal security and flexibility.

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Strontium-90 in Foods

Concentration of strontium-90, considered the most hazardous form of atomic debris, is generally three times as high in the U.S. and other areas in the same latitude as in the Southern Hemisphere. The Amazon Basin is the exception, however; there, contamination of food by radioactive fallout from nuclear explosions is five times as great, due to the heavy tropical rainfall, which brings strontium-90 down from the upper atmosphere. Over the years, it also has washed some of the calcium out of the soil. Both factors tend to increase the strontium in food crops and milk, because strontium is chemically related to calcium and tends to replace it in crops and in bone structure, especially when calcium levels in the soil are low.

In reporting to the American Chemical Society in Chicago in September, Drs. Arthur R. Schulert and J. Laurence Kulp of the Lamont Geological Observatory, Columbia University, Palisades, New York, stated that in general, cereal grains contain the highest levels of strontium-90, some fruits and vegetables contain intermediate levels, and milk has the lowest level, although there are large variations within each group.

If the amount of strontium-90 in the average U.S. diet remained at its present level, these authors commented, it would ultimately produce radioactivity in the body amounting to 5 per cent of the radiation we now receive from natural sources. The fact that it is much lower than this indicates that there is a considerable time lag in the absorption of strontium-90 from food into the bones.

Food, they said, is the key point in the transfer of strontium-90 from bomb to bone. Strontium-90 produced at detonation travels through the atmosphere to the soil, then into plants and on into human beings either directly or through dairy products. It is the only means by which bone concentration may be estimated with reasonable accuracy in remote, but nevertheless important, geographic areas. However, once the body's take-up of strontium-90 from food is known (and this has now been established within reasonable limits), the bone levels in any group of people can be predicted from their dietary levels. Food is the best "barometer" for quickly assessing potential danger to man. The bone mineral of the body is replenished very slowly. Consequently it takes a considerable time for a sharp increase of strontium-90 in one's food to be reflected in over-all bone concentration. Clearly food, and not bone, is the item to be watched in order to keep abreast of changes in the strontium-90 picture as it affects man.

In terms of "Sunshine Units" (amount of radiation equal to a micromicrocurie of strontium-90 per gram of calcium), the average U.S. content in cereal grains is 20, in some fruits and vegetables 12, and in milk, 8 units. Since milk and other dairy products constitute the major source of dietary calcium in the U.S. even for adults, considerable laboratory work has been directed toward investigations of milk. The highest value yet noted, 36 Sunshine Units, was found in pooled milk from a large number of farms in the northern Great Plains area. Such a finding would indicate that individual farms in the area may exceed 40 units in their milk, and perhaps reach 50.

Study of Large Quantity Preparation Procedures

Cooling Rate and Bacterial Growth in Cornstarch Pudding[1]

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DEVELOPMENT OF efficient cooling methods for foods prepared in quantity is a recognized problem in institutional food services. Such methods are important because of their relationship to the production of bacteriologically safe foods.

In a typical three-month period in 1956, sixteen outbreaks of food-borne illness involving 928 people were reported by the United States Department of Health, Education and Welfare (1). Eighty-one per cent of these outbreaks involving 93 per cent of the people were attributed to lack of proper refrigeration. Foods prepared in quantity were most frequently at fault.

Food which is held at temperatures allowing bacterial development is a health hazard. The growth of *Micrococcus pyogenes* var. *aureus* in foods is of particular concern to food service supervisors for two reasons. Growth of the organisms is associated with the production of a heat-stable enterotoxin which causes food poisoning when ingested in sufficient quantities. The organisms are abundant in nature and gain entrance into food through careless handling and poor sanitation.

Suggestions for a safe range of cooling temperatures for perishable foods were made by Jensen (2). He reported that 4 to 8 hr. in a temperature zone of 60° to 115° were sufficient for the production of unsafe food. He further commented that enterotoxin production by staphylococci does not take place below 60°F. However, to avoid the hazards from the growth of any organisms that might be present, he felt it wise to provide a margin of safety and consider the incubation danger zone to be 50° to 120°F. While no specific data were presented to support this recommendation, it has been widely used and quoted.

The importance of prompt cooling was also emphasized by Hussemann (3). She warned against the false sense of security which may be created by the use of refrigeration as a means of controlling growth and stated that if refrigeration is to be effective, every effort should be made to bring all of the mass of food to a temperature of 50°F. or less in the shortest possible time.

The purpose of this study was to observe the effect of certain cooling practices on the rate of heat loss in foods prepared in quantity and to evaluate the effectiveness of these methods by observing their influence on the growth rate of a toxin-producing strain of *Micrococcus pyogenes* var. *aureus*.

Method

A basic quantity recipe for cornstarch pudding (4) was prepared in lots of 100, 200, or 300 3-oz. portions in a steam-jacketed kettle.

INOCULATION PROCEDURE

Immediately following the cooking period, 100-portion lots were scaled into the 30-qt. bowl of a mixer. The pudding was stirred at low speed with the flat beater attachment until a temperature of 55°C. (131°F.) was reached in the center of the pudding mass. A known population of *Micrococcus pyogenes* var. *aureus* #196 was then introduced in the form of a broth culture. Food coloring added to the broth culture immediately before inoculation helped determine the mixing period sufficient to produce a uniform distribution of bacterial cells.

COOLING RATES

Cooling rates were determined for both inoculated and uninoculated samples. The inoculated pud-

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TABLE 1 Dimensions of containers used for cooling cornstarch pudding

CONTAINER	VOLUME	PUDDING	
		Surface area	Depth
	qt.	*sq. in.*	*in.*
Heavy duty stock pot	20	133	3.6
Heavy duty stock pot	14	113	4.3
Pudding pan	5	185	1.1

ding was transferred to the container or containers selected for the cooling process. Cast aluminum stock pots and shallow aluminum pans of the shape and size commonly used in institution food services were used. These are described in Table 1. One hundred-portion lots (9 qt.) of the pudding were measured into each stock pot. When the shallow pudding pans were used, 100 portions were divided equally among three such pans; each held 3 qt. Samples which were not inoculated were transferred to the appropriate containers directly from the steam-jacketed kettle.

The puddings were allowed to cool uncovered at room and at refrigerator temperatures. A straight stem thermometer was suspended in each container in the center of the pudding. Temperatures were observed and recorded hourly. Samples cooled at room temperature were held at 82°F., a temperature which had been observed as typical in a study of thirteen local institutional food service units (5). A walk-in refrigerator maintained at a temperature of 40° F. was used to cool samples in a low temperature environment.

Stirring was investigated as a means of hastening the cooling rate. One hundred-portion lots of pudding were stirred in a mixer at low speed for ½-hr. and 2-hr. periods. The pudding was removed to 14-qt. stock pots after the stirring period and cooling was completed at room and at refrigerator temperature.

DETERMINATION OF BACTERIAL GROWTH

Bacteriologic examination was made of 10-gm. samples of pudding removed before inoculation with the test organism, immediately after inoculation, and after holding for 4, 6, 8, 10, and 24 hr. These samples were blended with saline solution in a power blender. The number of organisms present was determined by plating serial dilutions of the blended sample on Staphylococcus Medium 110 (Difco).

Results and Discussion

An examination of the results indicates a relationship between container size, area temperature, cooling rate, and bacterial development.

COOLING RATES

Temperature recordings made at hourly intervals throughout the cooling period indicated, as might be expected, a more rapid rate of heat loss when the pudding was held at refrigerator temperature

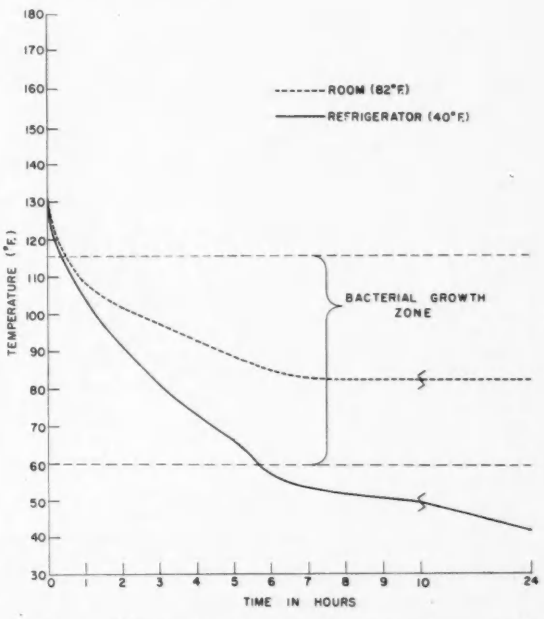

FIG. 1. *Effect of environmental temperature on the rate of heat transfer in cornstarch pudding (100 portions in 14-qt. stock pots).*

(40°F.) than when held at room temperature (82°F.) for the same period (Fig. 1). The temperature of the refrigerated pudding remained in the zone of 115° to 60°F. for approximately 5 hr. The pudding held at room temperature remained in this danger zone continuously after the first 30 min. The rates of heat loss in the two environments were comparable during the first hour of cooling. These observations are in agreement with other studies (6, 7) which have reported similar rates of heat loss during the first ½ to 2 hr. regardless of the ambient temperature.

Cooling rates of equal quantities of pudding were influenced not only by environmental temperature, but also by the size and shape of the cooling container (Fig. 2). Approximately 4½ hr. were required for 100 portions of pudding to cool from 115° to 60°F. when held in a 20-qt. stock pot; pudding held in a 14-qt. stock pot required 5 to 5½ hr., while that in the flat pudding pans was in the danger zone only 1½ hr. Weiser, Winter, and Lewis (8) observed similar effects of container size on the cooling rate of chicken salad. Approximately 24 hr. were required for the temperature in the center of a 30-lb. can of chicken salad to cool from 79° to 48°F. at refrigerator temperature. Cooling in smaller containers progressed at a more rapid rate.

One aspect of the problem which may not be generally recognized is the relatively long times required for cooling masses of food. Longrée and White (9) reported that white sauce in 2- and

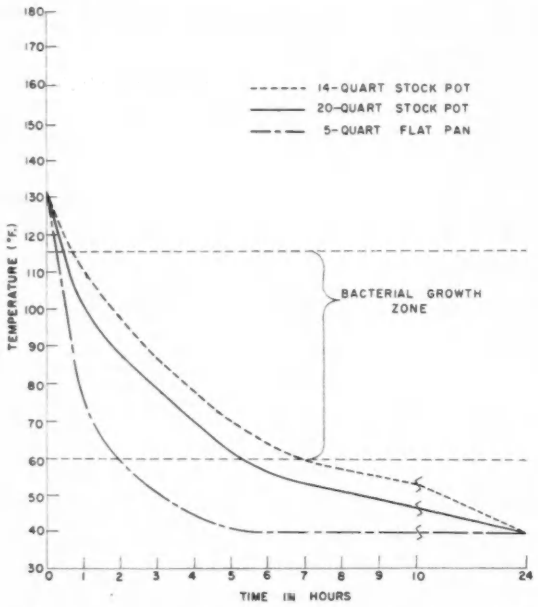

FIG. 2. *Effect of container size on the rate of heat transfer in cornstarch pudding held at refrigerator temperature (40°F.).*

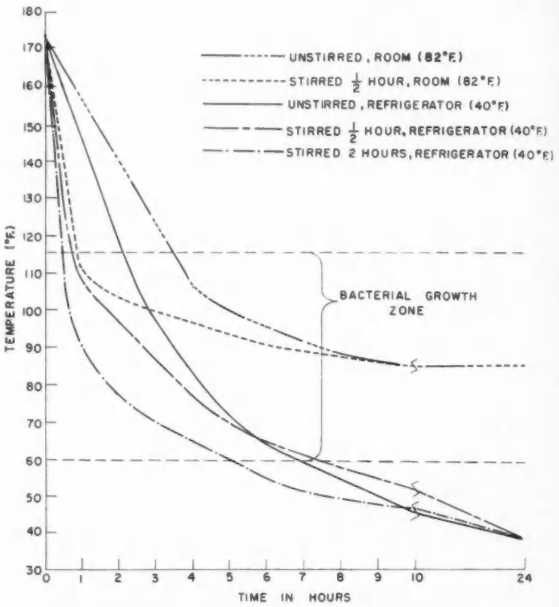

FIG. 3. *Effect of mechanical stirring and environmental temperature on rate of heat transfer in cornstarch pudding (100 portions in 14-qt. stock pots).*

4-gal. batches required 15 hr., while 8 gal. required 18 hr. to cool from 115° to 60°F. when held at refrigerator temperature. Milk cooled in cold air in 10-gal. cans required more than 12 hr. to cool from 60° to 50°F. (10).

The slopes of the cooling curves plotted in Figure 3 indicate the effect of stirring on the rate of cooling. Heat loss during the first hour was accelerated in the stirred samples. There was a more gradual decrease in internal temperature in similar quantities which were not stirred. In general, as the stirring period was increased, the loss of heat from the pudding mass was more rapid. Since the time that the food remained in the incubation zone is of more practical significance than the rate of heat loss *per se*, a comparison of these values is pertinent. Figure 3 indicates little difference in this respect in the samples stirred for 2 hr. before refrigeration, and those samples which were refrigerated unstirred. Both lots of pudding were in the bacterial growth zone for approximately 4 hr. Stirring for ½ hr. before refrigeration resulted in rapid heat loss from 170° to 115° F., but thereafter the rate was slower than in the unstirred pudding and as a result the pudding required more than 6 hr. to cool to 60°F.

Stirring was judged to improve the acceptability of the starch gel. Mechanical agitation produced a pudding with a smooth creamy texture and a shiny appearance. In contrast, the unstirred pudding appeared dull and more firm in consistency and was considered less acceptable.

BACTERIAL GROWTH

The time a food is permitted to remain at a temperature compatible with bacterial development influences the extent of growth of the organisms present. The logarithmic phase or period of most rapid bacterial multiplication was of special concern in these studies because of its association with the production of enterotoxin (11).

Data presented in Figure 4 illustrate the effect of the holding temperature on bacterial multiplication in cornstarch pudding. The results indicate that refrigeration does not necessarily prevent rapid growth when cornstarch pudding is held in 100-portion lots. A rapid increase in number of cells was noted in the first 4 hr. at both room and refrigerator temperatures.

Dramatic differences in bacterial growth rates were demonstrated by the use of cooling containers of various shapes and sizes (Fig. 5). During the logarithmic phase of growth, the number of cells present in the pudding in both the 14- and 20-qt. stock pots increased approximately twenty-five times. In contrast, only a twofold increase resulted when the pudding was cooled in flat, shallow pans. Similar results were reported by McDivitt and Hussemann (12) in a study of cooked ham.

Mechanical stirring had little effect on the growth rate of established bacterial populations. Comparable growth patterns occurred in refrigerated pudding samples regardless of the length of the stirring period. This is in agreement with findings in dairy

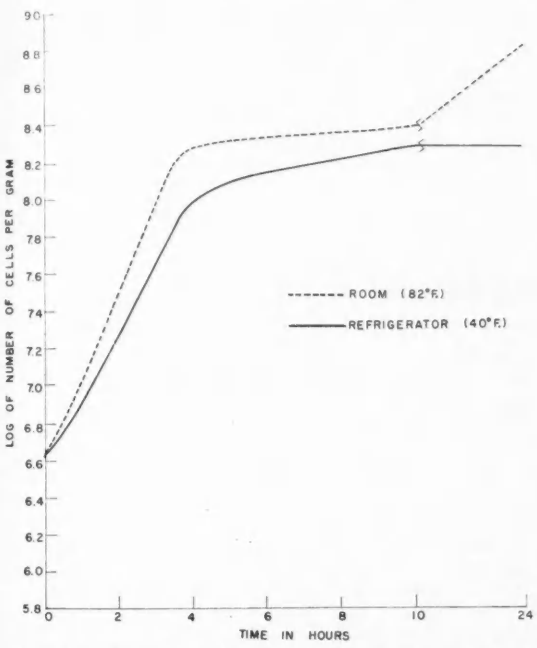

FIG. 4. *Effect of environmental temperature on the growth rate of* Micrococcus pyogenes *var.* aureus *in cornstarch pudding (100 portions in 14-qt. stock pots).*

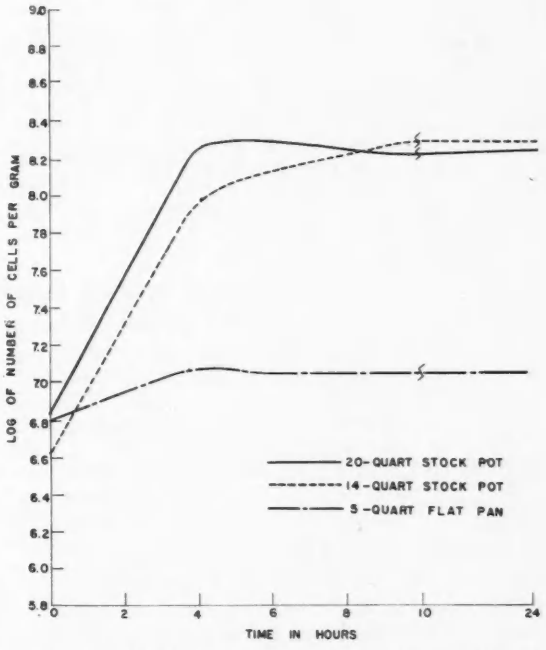

FIG. 5. *Effect of container size on the growth rate of* Micrococcus pyogenes *var.* aureus *in cornstarch pudding held at refrigerator temperature (14°F.).*

science. Environmental temperature was found to influence bacterial growth, but stirring had no effect (13).

IMPLICATIONS FOR QUANTITY FOOD SERVICE

An examination of the results of this study reveals that when pudding was cooled in 100-portion lots, none of the methods used fulfilled Jensen's (2) recommendation, i.e., that food should be held less than 4 hr. in the zone of 120° to 50°F. The use of flat shallow pans was the only method which can be termed "safe" if one is to adopt Jensen's definition of the term. This method was most efficient with respect to rate of heat transfer and prevention of bacterial growth; however, only thirty-three portions were contained in each pan. The feasibility of cooling all foods in such small lots in a quantity food service operation is questioned.

These data demonstrate that prompt refrigeration is not of itself assurance that a perishable food will be kept bacteriologically safe. Precaution must be taken to assure prompt cooling of the entire food mass. Since the best of the commonly-used methods of cooling foods in 100-portion lots was shown to be compatible with bacterial growth, the importance of sanitary handling is obvious. This is of particular importance in the preparation of such foods as puddings and pie fillings which have been shown to be good media for bacterial growth.

Summary

A relationship was shown to exist between the cooling rate and the growth of *Micrococcus pyogenes* var. *aureus* in 100-portion lots of cornstarch pudding. The rate of cooling was influenced by temperature of the cooling environment, size and shape of container, and the extent of mechanical stirring. The loss of heat was most rapid when 100-portion lots were divided equally among three flat, shallow pans. This method was the only one which did not allow extensive bacterial growth during cooling.

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BIOGRAPHICAL NOTES FROM THE HISTORY OF NUTRITION

Julius Robert Mayer—November 25, 1814–1878

Energy cannot rise from nothing, nor can energy be destroyed, and all forms of energy, such as heat, light, electricity, and chemical phenomena, can be transformed from one into another. This is a simplified statement of the Law of Conservation of Energy which established the first law of thermodynamics. This law was first put forward in 1842 by Julius Robert Mayer, a German physician. It is of direct importance in nutrition. The study of animal heat or energy production was among the earliest of studies in the science of nutrition in the nineteenth century, and its relation to caloric needs remains of prime importance today.

Julius Robert Mayer was a physician practicing in Heilbron. He had had only an ordinary school course in physics and mathematics, but had studied chemistry under Christian Gmelin (1792-1860) at Tubingen, where he obtained his M.D. degree in 1833. In 1840 Mayer spent the summer in Java, and while there, he observed that the venous blood of patients was bright red in color like that from an artery. He reasoned that the bright color was due to less loss of oxygen from the blood because less heat was given off from the body. He concluded that less oxidation was needed to maintain body temperature in a hot climate than a cold one, and he saw that there must be a close relation between work and heat. Thus his interest was aroused in the whole question of animal heat. Mayer wrote that "one great principle of the physiological theory of combustion is that under all circumstances the same amount of fuel yields by its perfect combustion the same amount of heat; that this law holds good even for vital processes; and that hence the living body, notwithstanding, all its enigmas and wonders, is incompetent to generate heat out of nothing." He also said, "conclude that it is total heat generated within and without that is to be regarded as the true calorific effect of the matter oxidized in the body... Hence, that a fixed relation exists between heat and work is a postulate of the physiological theory of combustion."

Mayer had no laboratory or mechanical appliances with which to work out his theories. His conclusions were all reached by the power of reasoning. In 1842, he sent a preliminary notice of his work to Liebig who published it in his *Annalen*, but a paper sent to Poggendorf, editor of *Annals of Physics and Chemistry* at Leipzig, was never acknowledged and was found unread some thirty-six years later among Poggendorf's papers.

Mayer was discouraged by the lack of recognition of his work, but he was convinced of the significance of his doctrines, and in 1854 he published a memoir which is now recognized as marking an epoch in the history of science. This memoir contained "Remarks on the Forces of Inorganic Nature" and a great essay, "Organic Motion in Its Connection with Nutrition."

Independently and at about the same time, James Prescott Joule (1818-89) of England experimentally established the same law for physical phenomena. But it was not until 1847 when the work of von Helmholtz (1821-94) gave it universal application that the Law of Conservation of Energy was accepted. In a paper published in 1894, Rubner in Germany demonstrated the truth of this law in nutrition. He showed that the heat produced by a dog in an animal calorimeter over 24 hr. agreed with the heat production calculated on the basis of metabolism.

Little recognition was given to Mayer for his work. He received an honorary degree from his alma mater and the Copley Medal of the Royal Society of England.

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1. The Immediate Post-Operative Period

Nutrition Following Gastric Resection[1]

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NUTRITION IS recognized as one of the most important phases in the care of the surgical patient today. Pre-operative preparation and post-operative care constitute the most important focus of attention in the consideration of any surgical problem and the role of nutrition has become increasingly more significant.

It was long accepted that a negative nitrogen balance, or the so-called catabolic response to injury, was unavoidable in the post-operative period. Various investigators (2-4), however, have demonstrated that this post-operative negative nitrogen balance can be halted at an early date by the administration of adequate protein and calories. To supply adequate nutrition one must have a thorough knowledge not only of the physiology of the gastro-intestinal tract but also of the constituents and physical properties of various foods.

A casual glance at the diet manuals of many hospitals shows that the usual post-operative dietary procedure consists of a period of water followed by so-called surgical or clear liquids, then to liquids not so clear, next to a full liquid diet, a soft diet, and finally a regular diet. The progression sometimes takes several days and only when the soft diet is obtained does the patient begin to receive an adequate amount of essential nutrients. This dietary regimen has proved particularly inadequate for the patient following gastrectomy.

In a previous paper (5), a progressive feeding program designed more nearly to meet the needs of the patient after gastrectomy was described. Clinical observation of a large number of patients and metabolic balance studies have resulted in the development of the present dietary regimen presented on page 1196. Instead of the usual fluids, five to six meals a day are offered. These consist of eggs, custards, cereals, thickened soups, milk, and fruit sauces. An attempt is made to provide a maximum amount of food value in a minimum volume with emphasis on the relative proportions of protein, fats, and carbohydrates. The diet is a progressive one and is increased day by day as the patient's tolerance for food increases. Although the steps in the progression appear clear cut as given on page 1196, the progression is actually quite variable, depending on the individual patient. Progression may mean that one food is added each day, or perhaps each meal, until Step III is reached. By progressive post-operative routine, we mean that progress is as fast as the patient is ready to eat more foods or a greater variety of foods. By the same token, the quantities of foods eaten will vary with each patient.

Close cooperation between the dietitian and the patient is essential in order that the dietitian may appreciate the background of previous experience with food which influences the patient's reaction to the new regimen. Frequently, patients have associated certain foods with bouts of pain prior to surgery or may have developed intolerance to specific foods because of repeated ingestion, as a result of the prescribed diet. Daily visits by the dietitian serve a two-fold purpose. She can note the patient's reaction to foods and determine how rapidly he may progress, and she also furnishes a source of confidence when he is apprehensive about what he may eat.

A series of nitrogen and fat balance studies were conducted to evaluate the adequacy of the progressive feeding regimen of patients following gastrectomy. All patients underwent the type of surgery described as Billroth I, and all but three also had vagotomy. Oral feeding usually began about the fourth post-operative day, and each patient progressed as rapidly as his tolerance for food permitted.

The actual period of balance extended over three

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Progressive Post-Gastrectomy Routine

Water or tea is offered as soon as oral feeding is permitted. Following this, the first meal (noon, or evening) consists of: poached egg, rusk with butter, and tea without sugar.

STEP I—first two days

Approximate calories: 1575; approximate protein: 65 gm.

Breakfast
Soft-cooked egg
Rusk, 1 piece
Butter
4 oz. milk
Noon meal
3 oz. cream soup
2 crackers
Butter
3 oz. custard
5 oz. milk
Afternoon snack
4 oz. milk
2 crackers
Butter
Evening meal
Poached egg on toast
3 oz. fruit purée
6 oz. milk
Bedtime feeding
5 oz. milk
3 oz. custard *or*
2 crackers with butter

STEP II—next two to four days

Approximate calories: 2000; approximate protein: 90 gm.

Breakfast
Soft-cooked egg
Toast
Butter
6 oz. milk
Noon meal
4 oz. cream soup
2 crackers
2 oz. cottage cheese
3 oz. cooked fruit
Toast
Butter
6 oz. milk
Afternoon feeding
6 oz. milk
2 crackers
Butter
Evening meal
2 oz. tender chicken
2 oz. mashed potato
2 oz. puréed vegetable
3 oz. Junket or gelatin
6 oz. milk
Bedtime feeding
Custard *or*
2 crackers with cheese
8 oz. milk

STEP III*

Approximate calories: 2200; approximate protein: 100 gm.

Breakfast
4 oz. orange juice
4 oz. refined cereal
2 oz. cream
Egg
Toast
Butter
6 oz. milk
Noon meal
Cream or broth-base soup
Egg, cottage cheese, or cream cheese
Cooked vegetable or baked potato
Toast *or* crackers
Butter
Allowed dessert†
6 oz. milk
Afternoon feeding
8 oz. milk
2 plain cookies
Evening meal
2 oz. tender meat, fish, or chicken with sauce or gravy
Potato or rice
Cooked vegetable
Toast
Butter
Fruit or allowed dessert
6 oz. milk
Bedtime feeding
Custard *or*
2 crackers with cheese or peanut butter
8 oz. milk

*Quantities in Step III vary greatly with the individual patients.

†Allowed desserts: custards, simple puddings, gelatin desserts, angel food cake, pound cake, or sponge cake (no frosting).

TABLE 1 **Average daily nitrogen and calorie data of 25 patients following sub-total gastric resection**

PATIENT	PER CENT RESECTION	POST-OPERATIVE DAYS STUDIED	INTAKE		NITROGEN OUTPUT			NITROGEN BALANCE
			Calories	Nitrogen	Urine	Feces	Total	
				gm./day	*gm./day*	*gm./day*	*gm./day*	*gm./day*
AS_1	75–80	5–7	888	6.45	9.17	0.32	9.49	−3.04
AS_2	75–80	8–10	1019	8.03	7.43	0.53	7.96	+0.07
CM	65	4–7	1064	4.79	9.37	1.43	10.80	−6.01
NB	70	3–8	1070	7.17	5.52	1.98	7.50	−0.33
GJ_1	100	3–5	1430	11.44	10.41	0.44	10.85	+0.59
NL	75	4–8	1534	5.81	5.82	1.07	6.89	−1.08
HM	65	8–10	1535	10.45	9.80	0.98	10.78	−0.33
PC_1	60	5–7	1586	9.61	8.98	0.63	9.61	±0
LH_1	50	5–7	1656	9.99	9.21	1.88	11.09	−1.10
PC_2	60	8–10	1666	10.84	9.49	0.70	10.19	+0.65
GJ_2	100	6–8	1691	12.67	10.85	1.33	12.81	+0.49
WA_1	50	5–7	1766	15.23	15.57	0.41	15.98	−0.75
RJ	60	6–9	1814	11.30	12.19	0.50	12.69	−1.39
JH	70	6–8	1898	11.60	11.05	1.96	13.01	−1.41
FL	75	6–8	1906	11.46	13.70	1.64	15.34	−3.88
OB	85	4–8	1955	10.31	12.66	1.39	14.05	−3.74
CN	85	5–9	2093	10.59	11.63	2.93	14.56	−3.97
BB	50	6–8	2118	16.40	9.95	1.50	11.45	+4.95
WA_2	50	8–10	2240	17.06	13.47	0.89	14.36	+2.70
UN	75	7–9	2337	10.57	9.47	2.14	11.61	−1.04
SS	65	11–13	2465	11.10	8.12	1.81	9.93	+1.17
DT	70–75	8–10	2630	15.52	12.22	1.66	13.88	+1.64
LH_2	50	8–10	2696	14.62	9.36	1.73	11.09	+3.53
NC	70	6–8	2980	15.59	13.35	2.06	15.41	+0.18
PM	70	11–13	2986	11.02	6.70	2.92	9.62	+1.40

days, although the subjects were observed from the initial day of feeding until the time of discharge. A duplicate of the food consumed and an aliquot of the urine and feces were analyzed by accepted chemical methods.

Observations on Nitrogen Balance

Table 1 presents the nitrogen balance data on twenty-five patients who were following a progressive dietary regimen similar to that illustrated on page 1196. The results of these nitrogen studies immediately after surgery have been tabulated in order of increasing caloric intakes and appear to indicate some relationship between the total caloric intake and the nitrogen balance. The negative nitrogen status tended to be greatest during the first three or four post-operative days and gradually to decrease with continued food intake. When intakes remained below 1800 calories per day, only three patients out of the twelve observed at this level approached nitrogen equilibrium. Of the nine patients ingesting 2000 or more calories daily, seven had achieved a positive nitrogen status.

Fat Balance Studies

The data from fat balance studies of fifteen patients immediately following sub-total gastrectomy are presented in Table 2. It is interesting that as the fat intake increased, the percentage absorbed also increased. However, only one patient reached the 90 per cent absorption level considered by Frazer (6) as the low limit of normal. Adequacy of absorption ranged from a low of 41.8 to 91.0 per cent.

This interference in the utilization of fat decreased the total amount of calories available for metabolism. The majority of patients were able to achieve positive nitrogen status in spite of this defection; however, a persistent loss of 100 to 200 calories per day could materially influence the potential ability to regain weight.

Problems after Gastric Resection

One of the problems following sub-total gastric resection has been described as the "dumping syndrome" and is manifest by a feeling of weakness, lowering of blood pressure, fast pulse, and sometimes by nausea or diarrhea.

Many theories have been presented as to the exact mechanism of so-called "dumping." Probably the one most readily accepted at present is that offered by Roberts *et al.* (7) in which there is a shift of plasma into the small bowel. Part of the symptoms seem to be explained on the basis of the actual plasma loss.

It is important that the diet offered after surgery be carefully planned to include proteins and fats in proper proportions with carbohydrates in feedings of moderate volume. A glass of cold, high carbohydrate milkshake (a natural constituent of the usual hospital liquid diet) can initiate the dumping syn-

TABLE 2 Average daily fat and calorie data for 15 patients following sub-total gastric resection

PATIENT	PER CENT RESECTION	FAT INTAKE	FAT IN FECES	FAT ABSORPTION	CALORIC INTAKE	CALORIC LOSS AS FAT	AVAILABLE CALORIES
		gm./day	*gm./day*	%			
CM	65	37.4	21.7	41.8	1064	195	869
NB	70	37.7	10.8	71.4	1070	97	973
WW_2	75	43.9	10.3	76.6	973	93	880
HM	65	63.0	11.5	81.8	1535	103	1432
CN	85	65.5	18.4	71.8	2093	166	1927
JS	70	67.9	22.5	67.0	2986	202	2784
JB	50	71.9	22.1	69.0	2118	199	1919
OB	85	74.0	46.2	37.5	1955	416	1539
ML	70	77.5	20.1	74.0	1898	180	1718
NL	75	79.3	13.4	83.1	1534	121	1413
MN	75	85.6	18.2	79.0	2630	164	2466
PH	75	98.6	29.2	70.0	2337	263	2074
MT	65	114.6	18.7	84.0	2465	163	2302
ST	70	128.6	12.0	91.0	2980	108	2872
BW	75	134.2	19.4	78.0	1906	175	1731

drome. After the patient once experiences this phenomenon, he becomes increasingly wary of eating, and his food intake may fall below the desired level. Many post-prandial dumping problems can be alleviated or eliminated by an adequate dietary program immediately after surgery. Poor dietary habits, coupled with psychologic reactions toward food which may have developed in the presurgical stage, make close follow-up by both doctor and dietitian imperative.

Much has been mentioned in the literature concerning the later development of the so-called post-prandial or dumping syndrome and the loss of nutrients or chemicals, as in the development of anemia. A concern for the problem of weight-gain after gastric surgery has also been voiced.

This paper reports the results of observations made during the first two weeks following sub-total gastrectomy. A follow-up study is in progress at the Ohio State University Hospital to evaluate the nutritional status and dietary problems in the period from one to five years following partial gastric resection. Results of these observations will be published at an early date.

Conclusions and Summary

A progressive dietary regimen to follow gastrectomy which attempts to avoid the development of the undesirable side effects of inappropriate feeding and results in the early establishment of a positive nitrogen balance has been described.

The regimen emphasizes soft foods rather than liquids, is relatively high in protein, and contains a minimum of bulk, with five to six feedings a day.

The metabolic picture indicates a deviation from the normal expectation of protein and fat utilization. As Wollaeger suggests (8): "It would seem that among various individuals there are rather great differences in the ability of the gastro-intestinal tract to compensate for the added burden placed upon it by partial gastrectomy."

Whether the absorption anomalies are attributable to the post-operative chemistry of the intestinal tract or to the altered anatomical relationships is difficult to state, but there is evidence that the patient after gastrectomy can expect some degree of aberration of absorptive function. In all of these problems, once mechanical or psychogenic factors have been ruled out, it becomes a function of the physician and the dietitian to aid the patient with his dietary problems from a practical standpoint in relation to the patient's intelligence, work habits, and economic status. Every effort should be made to establish a dietary pattern as nearly normal as possible and to avoid any semblance of rigidity which would make the patient a dietary cripple.

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Nutritional Condition of New Mexican Children[1]

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IN 1950, about 170 adolescents in a northern New Mexican community were examined as part of a cooperative regional project on the nutritional condition of selected population groups of the West. New Mexican participants included "Spanish-American" and "Anglo" boys and girls fourteen, fifteen, and sixteen years old in Las Vegas schools (1, 2).

When the data were summarized, it was found that the diets of the Spanish-American young people were less adequate than the Anglos' in calories, protein, fat, calcium, thiamine, and riboflavin.

Hemoglobin levels, hematocrit readings, red blood cell values, serum carotene, protein, and cholesterol were significantly lower in the Spanish-Americans. Serum ascorbic acid levels were low in both groups. The Spanish-American boys and girls were shorter and lighter in weight than the Anglos of the same age. There were few physical signs that could be related to nutritional deficiency, but these were somewhat more common and more severe in the Spanish-Americans. The incidence of dental caries was lower in the Spanish-American group.

To check these findings, several follow-up projects have been carried out. This report deals with data on 365 children six to fourteen years of age in the elementary schools of Las Cruces, New Mexico, who were examined in 1955.

New Mexico has many Spanish-speaking, Spanish-surname residents. In spite of the movement of people from other states into New Mexico in recent years, 36.5 per cent of the white population in 1950 had Spanish surnames. In ten of the thirty-two counties, these people accounted for more than half of the total population (3). They are divided into two groups. The first and larger group is made up of descendants of the early settlers who were here when the region became part of the United States. These people are known locally as "Spanish-Americans." The second group is composed of more recently arrived immigrants from Mexico who are generally called "Mexicans." The term "Anglo" locally refers to the rest of the white population.

In San Miguel County, where the first study was made, 77 per cent of the total white population in 1950 had Spanish surnames. Of these, more than 98 per cent were native born. The 1955 study was made in Dona Ana County in the southern part of the state. Here, 53 per cent of the white population in 1950 had Spanish surnames, and 84 per cent of these were native born.

Dona Ana County had a population of 39,550 in 1950 and an estimated population of 44,000 in 1955. It is one of the most important agricultural counties in the state. In 1949, more than 10 per cent of the total farm income in the state was produced in Dona Ana County. Cotton is the principal crop. There are no large industries. Las Cruces, the county seat, has a population of approximately 18,000. In addition to farming and related activities and employment furnished by business establishments common to cities of this size, the New Mexico College of Agricultural and Mechanical Arts and the White Sands Proving Ground add to the payroll of the community. The average income is higher in Dona Ana County than in San Miguel County, but in both areas there are many large families with low incomes.

Procedure

On the basis of replies sent by the parents of all children in twelve elementary schools of the Las Cruces district, the children were separated into

[1]This study is part of the Western Regional Research Project on the Nutritional Status of Population Groups in the West. The New Mexican phase was under the direction of the Agricultural Experiment Station at the New Mexico College of Agricultural and Mechanical Arts. The investigation was financed in part by funds appropriated under the Research and Marketing Act of 1946. This is Article 117 in the journal series of the Agriculture Experiment Station. Received for publication February 24, 1958.

[2]The authors wish to acknowledge the assistance and cooperation of the administrators, teachers, and nurses of the Las Cruces School District. The assistance of Donna Schad for statistical work is also gratefully acknowledged.

[3]Present address: Mesa, Arizona.

three groups: Anglo, Spanish-American, and others (chiefly those with Spanish surnames of recent Mexican descent). Children in the Spanish-American and Anglo groups were classified by age and sex. Age was listed as of the last birthday. Random samples of the desired size were drawn from each classification, and parents were interviewed to obtain permission to have their children included in the study. If permission was refused or if the subject was found to be unsuitable for any reason, another name was drawn. There were some drop-outs, and too few subjects were available in some categories. The final distribution of the 365 children included in the survey is shown in Table 1.

Table 1 Distribution of subjects by age and culture group

AGE	ANGLO		SPANISH-AMERICAN	
	Boys	Girls	Boys	Girls
yr.				
6	11	9	10	9
7	11	12	13	12
8	12	12	12	10
9	10	12	10	13
10	10	10	11	11
11	10	12	10	12
12	9	8	9	7
13	10	9	9	9
14	3	7	5	9
15	1	—	4	2
Total	87	91	93	94

The parents of the children were asked to keep a record of all food eaten by the child for seven days. Through the cooperation of the school administrators, the examinations were made at schools. Height, weight, and other body measurements were taken. A finger-tip blood sample was taken for determination of hemoglobin, serum protein, ascorbic acid, and alkaline phosphatase.

Some children failed to turn in satisfactory dietary records. In some cases, blood samples were not obtained or were too small for all analytical procedures. Therefore, the numbers of subjects shown in the various tables are not always the same.

The method of recording the seven-day food history was explained to the parents and to the child, if he was old enough to keep his own record. The completed records were turned in each day to the teacher or school nurse, who passed them on to the research team. Servings per week of different food groups were tabulated to give an idea of the usual food habits. The amounts of specific foods eaten during the week were expressed as pounds, and

TABLE 2 Mean servings per week of different food groups eaten by New Mexican children

SUBJECTS	NUMBER	MEAN SERVINGS PER WEEK											
		Milk	Cheese, ice cream, etc.	Eggs	Meat, poultry, fish	Beans and nuts	Leafy green and yellow vegetables	Citrus, tomato, raw cabbage	Potato, other vegetables and fruits	Flour, bread, cereal	Butter or margarine	Energy foods, (sweets, etc.)*	Soft drinks
Anglo Boys													
Las Cruces													
6 years	10	22	6	4	12	2	4	5	15	33	10	26	1
7 to 9 years	27	17	5	3	14	3	5	6	15	36	10	32	2
10 to 12 years	22	17	5	3	17	3	6	6	17	34	7	33	3
13 to 15 years	14	22	5	4	18	4	8	10	19	43	10	37	4
Las Vegas—14 to 16 years	26	22	8	6	16	3	8	8	19	48	16	48	5
Spanish-American Boys													
Las Cruces													
6 years	8	13	3	4	11	9	2	3	12	25	3	35	3
7 to 9 years	27	14	3	4	11	7	4	4	13	36	4	18	2
10 to 12 years	15	15	2	5	11	8	3	3	13	33	5	13	2
13 to 15 years	14	12	1	7	11	11	4	4	14	30	2	16	2
Las Vegas—14 to 16 years	46	13	4	7	10	10	7	3	20	51	5	35	4
Anglo Girls													
Las Cruces													
6 years	8	17	4	4	15	2	5	8	13	28	4	22	1
7 to 9 years	28	15	4	3	13	3	5	6	15	31	12	32	3
10 to 12 years	23	16	5	3	15	2	5	6	15	35	6	33	3
13 to 15 years	13	14	5	4	16	3	4	5	15	38	7	28	3
Las Vegas—14 to 16 years	34	14	10	3	13	4	7	6	14	36	11	11	5
Spanish-American Girls													
Las Cruces													
6 years	8	17	5	6	10	5	5	2	12	18	3	29	4
7 to 9 years	27	15	3	4	11	7	2	3	11	34	4	18	1
10 to 12 years	15	16	3	5	13	6	4	4	13	29	5	19	2
13 to 15 years	14	12	1	5	11	8	4	2	15	32	5	17	3
Las Vegas—14 to 16 years	56	9	5	4	11	7	7	4	15	42	5	5	4

*Includes soft drinks.

from these figures the intakes of essential nutrients were calculated as in the previous survey (1).

Food Habits

The seven-day records kept by these children resemble those in the Las Vegas survey (1) in showing that the meals of the Anglo children were more varied and contained more of the protective foods than those of the Spanish-Americans. The mean servings per week of the different food groups eaten by these children are shown in Table 2. For comparison, data from the Las Vegas survey have been included.

Milk consumption ranged from none, reported by one Spanish-American boy and two Anglo girls (all in the seven- to nine-year age group), to 41 8-oz., servings a week. Mean consumption ranged from 12 servings a week for the thirteen- to fifteen-year-old Spanish-American boys and girls to 22 servings a week for the six-year-old and thirteen- to fifteen-year-old Anglo boys. In every age group, the Anglo boys had more milk than the Spanish-American boys. There was no difference in the mean consumption of milk by the Anglo and Spanish-American girls except in the thirteen- to fifteen-year-old group. The Spanish-American girls drank more milk than the Spanish-American boys, but the reverse was true of the Anglos.

The Spanish-American children had less *meat*, more *eggs*, and more *beans* than the Anglos. This was true of both boys and girls and in all age groups. The Anglos had more *vegetables* of all types and more *ascorbic acid-rich* foods than the Spanish-Americans.

The six-year-old Spanish-American boys and girls reported fewer *sweets*, including candy and soft drinks, than the Anglo children of the same age, but in the older children the reverse was true.

Most of these children ate breakfast. Only one child turned in seven records without breakfast, while two others had no breakfast on five of the seven days. Several skipped breakfast at least once. However, few of the breakfasts could be considered adequate from the standpoint of calories or content of protective foods.

Four of the twelve schools had lunch programs and several had milk for between-meal feeding. The effect of the school lunch on the mean consumption of the different food groups is shown in Table 3. As all children having one or more school lunches were included in the school lunch group, the effect of the school lunch in improving the intake of protective foods is striking. The mean consumption of milk, milk products, and potatoes was increased for all four groups eating the school lunch. Three of the four groups having the school lunch had more eggs, meat, leafy green and yellow vegetables, and ascorbic acid-rich foods. Except for the Spanish-American girls, the children who had one or more school lunches ate fewer foods supplying chiefly energy, such as cookies, candy, and soft drinks.

Nutrient Intakes

The mean intakes of energy and nine essential nutrients have been summarized in Table 4 according to culture, sex, and age. These data do not include vitamin or mineral supplements which were reported by twenty-eight Anglos and fourteen Spanish-Americans.

The thirteen- to fifteen-year-old Anglo boys had the highest *energy* intake, with a mean of 2683 calories. The ten- to twelve-year-old Anglo boys and the thirteen- to fifteen-year-old Anglo girls followed, with means of 2296 and 2205 calories. The lowest values were recorded by the ten- to twelve- and thirteen- to fifteen-year-old Spanish-American boys, with means of 1692 and 1707 calories. The means for energy of the ten- to twelve- and thirteen-to-fifteen-year-old Spanish-American boys are probably too low. Errors in estimation of calories would

TABLE 3 Effect of school lunch on mean servings of different food groups eaten by New Mexican children

SUBJECTS	MEAN SERVINGS PER WEEK											
	Milk	Cheese, ice cream, etc.	Eggs	Meat, poultry, fish	Beans and nuts	Leafy green and yellow vegetables	Citrus, tomato raw cabbage	Potato, other vegetables and fruit	Bread, flour, cereals	Butter or margarine	Energy foods (sweets, etc.)*	Soft drinks
No School Lunch												
Boys												
Anglo	18.7	6.0	3.2	14.6	2.6	4.7	6.3	16.0	36.4	9.9	34.4	2.1
Spanish-American	13.4	2.4	5.1	11.2	8.5	3.3	3.4	12.9	32.9	3.8	18.9	2.3
Girls												
Anglo	14.8	4.4	3.1	13.7	2.5	5.1	5.8	14.3	34.0	9.7	31.3	3.1
Spanish-American	14.7	2.5	4.3	10.6	7.1	2.8	3.4	12.6	31.0	4.6	17.1	1.7
One or More School Lunches												
Boys												
Anglo	19.0	4.7	3.4	15.8	3.5	6.7	7.0	16.6	36.0	8.4	29.8	2.8
Spanish-American	18.1	2.9	4.8	10.0	7.8	5.0	5.1	18.2	27.4	3.3	16.6	1.0
Girls												
Anglo	17.1	4.5	3.8	16.2	2.9	4.7	6.5	15.6	31.9	5.5	29.4	2.0
Spanish-American	14.8	3.8	4.9	14.1	5.5	6.2	3.0	13.7	30.5	5.1	29.3	5.0

*Includes soft drinks

carry over to other nutrients. However, it is evident that, as in the Las Vegas survey, the Anglo children, especially the Anglo boys, had more adequate diets than the Spanish-Americans.

Protein intake ranged from a low of 71 gm. for the six- to nine-year-old Spanish-American girls and ten- to twelve-year-old Spanish-American boys to a high of 110 gm. for the thirteen- to fifteen-year-old Anglo boys. The mean for all Anglos was 84 gm.; for all Spanish-Americans, 73 gm.; for all boys, 82 gm.; and all girls, 76 gm.

The highest mean values for *calcium* (1420 mg.); for *vitamin A* (7494 I.U.); for *thiamine* (1.38 mg.); for *riboflavin* (2.59 mg.); and *ascorbic acid* (122 mg.) were recorded by the thirteen- to fifteen-year-old Anglo boys. The same age Spanish-American boys had the lowest means for *calcium* (836 mg.); *vitamin A* (4032 I.U.); and *riboflavin* (1.67 mg.). The six- to nine- and seven- to twelve-year-old Spanish-American girls and the ten- to twelve- and thirteen- to fifteen-year-old Spanish-American boys had *thiamine* intakes of less than 1 mg. The *ascorbic acid* intake of four of the six groups of Spanish-Americans averaged less than 60 mg. per day.

Iron was the one nutrient which was higher in the Spanish-American diets. The highest mean value (15 mg.) was that of the thirteen- to fifteen-year-old Spanish-American boys, followed by the Anglo boys of the same age (14.8 mg.). The lowest values were found for the Anglo six- to nine- and ten- to twelve-year-old girls, with means of 10.9 and 11.3 mg.

As an additional basis for evaluating these diets, the intake of each nutrient for each child was classified as meeting or exceeding the Recommended Dietary Allowances, those providing 67 to 99 per cent and those failing to provide two-thirds of the allowances (4). The percentage of the children in the different age, sex, and cultural groups in each of these categories are summarized in Table 5. On this basis, ascorbic acid was the nutrient most often deficient in the diets of these children. Thirty-three per cent of all Spanish-Americans, 17 per cent of all Anglos, 26 per cent of all girls, and 23 per cent of all boys had less than two-thirds of the recommended allowances. Almost as many children were deficient in calcium and vitamin A. Fourteen per cent of the Anglos and 31 and 27 per cent of the Spanish-Americans had less than two-thirds of the recommended allowances. Twenty-three per cent of all Spanish-Americans and 7 per cent of all Anglos had low thiamine intakes also. The intakes of protein and iron were the most satisfactory of all nutrients measured; 65 per cent of the Spanish-Americans, 84 per cent of the Anglos, 77 per cent of all boys, and 73 per cent of all girls met or exceeded the

TABLE 4 **Mean and standard error for daily intakes of calories and nine nutrients**

AGE GROUP	NUMBER	ENERGY	PROTEIN	CARBOHYDRATE	CALCIUM	IRON	VITAMIN A	THIAMINE	RIBOFLAVIN	NIACIN	ASCORBIC ACID
					Anglo Boys						
		calories/day	*gm./day*	*gm./day*	*mg./day*	*mg./day*	*I.U./day*	*mg./day*	*mg./day*	*mg./day*	*mg./day*
6 to 9 years	37	2130± 69	82± 2.6	251± 8.7	1190± 44	11.5±0.49	6195± 619	1.1±0.05	2.1±0.08	12.5±0.53	79± 5
10 to 12 years	22	2296± 84	91± 3.6	271±11.9	1130± 38	12.5±0.53	5402± 509	1.2±0.06	2.1±0.07	15.3±0.78	79± 7
13 to 15 years	14	2683±153	110±11.0	328±16.0	1420±129	14.8±0.61	7494±1024	1.4±0.08	2.6±0.22	15.1±0.93	122±17
All Anglo boys	73	2286± 57	90± 2.9	272± 7.2	1216± 37	12.4±0.35	6205± 404	1.2±0.03	2.2±0.06	13.9±0.42	87± 5
					Spanish-American Boys						
6 to 9 years	35	1842± 71	73± 2.8	229±11.2	929± 52	12.6±0.41	4247± 510	1.1±0.08	1.7±0.08	10.9±0.51	58± 4
10 to 12 years	15	1692±166	71± 6.0	203±20.5	928± 86	12.9±1.18	5880±1191	1.0±0.08	1.7±0.14	10.1±0.96	59± 9
13 to 15 years	14	1707±135	75± 6.9	207±13.1	863± 96	15.0±0.89	4882± 767	1.0±0.08	1.7±0.16	10.8±1.12	71± 8
All Spanish-American boys	64	1777± 62	73± 2.5	218± 8.3	914± 40	13.2±0.41	4769± 429	1.0±0.05	1.7±0.05	10.7±0.42	61.±4
					Anglo Girls						
6 to 9 years	36	1940± 70	75± 2.9	226± 7.6	984± 61	10.9±0.43	6005± 572	1.1±0.03	1.9±0.10	12.2±0.50	79± 6
10 to 12 years	23	2093± 91	80± 3.5	257±15.1	1028± 83	11.3±0.39	5124± 472	1.1±0.06	2.0±0.12	12.8±0.53	88± 7
13 to 15 years	13	2105±170	82± 6.2	267±19.2	1024± 84	12.8±1.13	4032± 555	1.2±0.11	1.9±0.16	13.0±1.27	69± 9
All Anglo girls	72	2037± 55	78± 2.2	243± 7.2	1006± 43	11.4±0.33	5368± 346	1.1±0.03	1.9±0.07	12.5±0.37	80± 4
					Spanish-American Girls						
6 to 9 years	33	1757± 68	71± 3.1	210± 9.2	914± 62	12.1±0.51	4095± 469	1.0±0.05	1.7±0.10	10.5±0.45	56± 5
10 to 12 years	16	1874±109	77± 4.5	231±14.3	1023± 87	12.9±0.82	5057± 625	1.0±0.06	1.9±0.15	11.4±0.80	78±11
13 to 15 years	44	1862±234	74± 9.9	235±33.9	880±122	14.1±1.23	4601± 649	1.0±0.18	1.7±0.24	11.8±1.97	57± 7
All Spanish-American girls	63	1810± 68	73± 2.8	221± 9.6	934± 47	12.8±0.44	4452± 325	1.0±0.05	1.8±0.08	11.0±0.53	62± 4
					Over-All Averages						
All boys	137	2048± 47	82± 2.1	247± 5.9	1075± 30	12.8±0.27	5534± 300	1.1±0.03	2.0±0.06	12.4±0.33	75± 3
All girls	135	1931± 44	76± 1.8	233± 6.0	972± 32	12.0±0.28	4940± 241	1.0±0.03	1.8±0.06	11.8±0.32	72± 3
All Anglos	145	2161± 41	84± 1.9	258± 5.2	1112± 29	11.9±0.24	5789± 268	1.2±0.02	2.1±0.05	12.0±0.29	84± 3
All Spanish-Americans	127	1793± 46	73± 1.9	220± 6.3	924± 31	13.0±0.30	4611± 269	1.0±0.03	1.7±0.06	10.9±0.34	61± 3

allowances for protein. Only 1 per cent of the boys and 6 per cent of the girls failed to have two-thirds of the recommended amount. Sixty-five per cent of the Spanish-Americans and 57 per cent of the Anglos met or exceeded the allowances for iron.

Blood Findings

The finger-tip blood samples obtained from these children were analyzed for hemoglobin, serum protein, serum alkaline phosphatase, and serum ascorbic acid. Because only a limited number of blood constituents could be determined, these four were chosen because of findings in the initial survey.

Hemoglobin and ascorbic acid were determined as in the first survey (2). Serum protein was determined by the falling-drop method of Barbour and Hamilton (5). Serum alkaline phosphatase was determined by the micro-technique of Bessey, Lowry, and Brock (6). The values found have been summarized in Table 6.

HEMOGLOBIN

The concentration of hemoglobin in the blood is a widely used index of nutritional condition. While an adequate supply of iron is necessary for the maintenance of a satisfactory level of hemoglobin, protein, vitamins, and other minerals must be present in sufficient amounts also. Although there is a wide range of values in normal individuals, there have been so many surveys of population groups that average values are fairly well established. The hemoglobin level varies with age. It is quite high (19 to 29 gm. per 100 ml.) at birth, but soon drops to about 12 gm. at approximately three months of age. Values rise slowly during childhood and are the same for boys and girls until twelve or thirteen years of age, when boys' values rise sharply, while girls' tend to level off or rise gradually (7).

Mack suggests that 13 gm. hemoglobin per 100 ml. blood is a desirable level for children and considers values below 12 gm. definitely low (8). McBee, Moschette, and Tucker (9) found a mean of 13.1 gm. in a survey of over five hundred Louisiana children, eight to thirteen years of age. In a study of 392 Michigan children, two to eighteen years of age, Kaucher *et al.* (7) found values ranging from 10.5 to 18 gm. hemoglobin per 100 ml. blood, with a mean of 13.5 gm. Means for both boys and girls were 12.4 gm. at three years of age and 13.4 gm. at ten years. There was little increase in values for older girls, but the mean for boys rose to 13.8 gm. in the thirteenth year and 14.7 gm. in the seventeenth year. These studies were made at relatively low altitudes. Wilcox *et al.* (10) found similar values in a group of children at Ogden, Utah.

The mean hemoglobin values for the boys in the Las Cruces survey was 13.4 gm. There was no difference between Anglo and Spanish-American boys.

TABLE 5 **Percentage of children receiving certain levels of the Recommended Dietary Allowances**

SUBJECTS	LEVEL OF ADEQUACY	PER CENT OF CHILDREN								
		Calories	Protein	Calcium	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic acid
					Boys					
Anglo (73)	less than 67%	5	1	5	0	8	8	1	2	15
	67 to 99%	47	10	33	37	14	37	14	23	15
	more than 99%	48	89	62	63	78	55	85	75	70
Spanish-American (64)	less than 67%	33	11	33	3	27	30	14	24	33
	67 to 99%	47	25	39	28	25	34	31	34	23
	more than 99%	20	64	28	69	48	36	55	42	44
					Girls					
Anglo (72)	less than 67%	10	7	22	7	20	7	10	4	19
	67 to 99%	47	15	38	42	15	40	25	25	13
	more than 99%	43	78	40	51	65	53	65	71	68
Spanish-American (63)	less than 67%	17	9	30	5	27	16	14	13	33
	67 to 99%	62	24	38	35	30	51	35	36	26
	more than 99%	21	67	32	60	43	33	51	51	41
					All Subjects					
Boys (137)	less than 67%	18	6	18	1	17	18	7	12	23
	67 to 99%	47	17	36	33	19	36	22	28	19
	more than 99%	35	77	46	66	64	46	71	60	58
Girls (135)	less than 67%	13	8	26	6	23	11	12	8	26
	67 to 99%	54	19	38	38	22	45	30	30	18
	more than 99%	33	73	36	56	55	44	58	62	56
Anglos (145)	less than 67%	8	4	14	4	14	7	6	3	17
	67 to 99%	47	12	35	39	14	39	19	24	14
	more than 99%	45	84	51	57	72	54	75	73	69
Spanish-Americans (127)	less than 67%	25	10	31	4	27	23	14	18	33
	67 to 99%	54	25	39	31	27	42	33	35	24
	more than 99%	21	65	30	65	46	35	53	47	43

The mean hemoglobin value for all girls was 13.1 gm.; for all Anglo girls, 13.4; and for all Spanish-American girls 12.8 gm. The difference between the means for the Anglo and Spanish-American girls is statistically significant. Differences between the girls were greatest at eight and nine years.

TABLE 6 **Mean blood values of New Mexican children**

AGE	BOYS				GIRLS			
	Anglo		Spanish-American		Anglo		Spanish-American	
	Number	Mean	Number	Mean	Number	Mean	Number	Mean
				Hemoglobin				
yr.		*gm./100 ml.*		*gm./100 ml.*		*gm./100 ml.*		*gm./100 ml.*
6	11	13.1	10	12.6	9	12.8	9	12.4
7	10	13.2	13	12.4	12	13.0	12	13.4
8	12	13.2	12	13.3	12	13.3	10	11.6**
9	10	13.3	10	13.5	12	14.4	13	12.9*
10	10	13.3	11	13.4	10	13.3	11	12.6
11	10	13.3	10	13.8	12	13.6	12	13.0
12	9	13.8	9	14.0	8	13.4	7	13.0
13	10	14.4	9	14.0	9	13.3	9	13.0
14	3	13.8	5	13.3	7	13.4	9	12.9
Total . . .	85	13.4	89	13.3	91	13.4	92	12.8
				Serum Protein				
6	7	6.3	8	5.8	9	6.1	9	6.5
7	8	6.2	12	6.2	9	6.1	10	6.1
8	7	6.2	9	6.3	10	6.6	9	6 4
9	5	6.2	7	6.1	6	5.9	12	6.3
10	6	6.1	9	6.4	9	6.5	8	6.4
11	9	6.3	5	6.1	10	6.2	11	6.4
12	9	6.9	5	6.6	7	6.2	3	6.5
13	7	6.6	7	6.3	6	6.6	7	6.4
14	—	—	—	—	5	6.4	9	6.6
Total . . .	58	6.3	62	6.2	71	6.3	78	6.4
				Serum Alkaline Phosphatase				
		nitrophenol units/100 ml.		*nitrophenol units/100 ml.*		*nitrophenol units/100 ml.*		*nitrophenol units/100 ml.*
6	11	5.2	10	5.3	9	6.0	9	5.9
7	11	5.8	13	5.6	12	5.9	12	5.7
8	12	5.7	12	5.0	11	5.6	10	5.6
9	10	7.0	10	5.1	11	5.6	13	5.9
10	10	4.9	11	5.7	10	6.7	11	6.5
11	10	5.7	10	6.3	12	6.3	12	6.8
12	9	5.4	9	8.0**	8	5.2	7	4.4
13	10	6.3	9	6.7	9	4.8	9	4.3
14	3	7.6	5	6.2	7	3.3	9	3.5
Total . . .	86	5.8	89	5.9	89	5.7	92	5.5
				Serum Ascorbic Acid				
		mg./100 ml.		*mg./100 ml.*		*mg./100 ml.*		*mg./100 ml.*
6	9	0.7	9	0.8	7	1.0	8	0.5*
7	9	1.4	12	0.7*	12	1.1	10	0.9
8	11	1.0	10	1.0	12	1.0	10	0.8
9	9	1.0	10	0.8	10	1.2	13	0.8
10	10	1.0	10	0.7	8	0.8	11	0.6
11	9	0.6	9	0.9	11	1.0	11	1.0
12	8	1.1	7	0.4**	8	0.9	6	1.1
13	9	1.1	7	0.6	9	0.7	9	0.6
14	3	0.8	5	0.4	7	0.9	9	0.6
Total . . .	77	1.0	79	0.7**	84	1.0	87	0.7**

*Significant at 5% level.
**Significant at 1% level.

The values for the New Mexican children follow closely the pattern for the Michigan children, except those of the Spanish-American girls, which are generally lower and closer to the Louisiana values.

The Las Cruces children were graded according to the standard set up by Bessey and Lowry (11) following a survey of children in New York schools. According to this standard, no Anglo and only five Spanish-American children fall into the "poor" classification. However, more Anglo than Spanish-Americans fell into the "good" or "excellent" classification as shown by Table 7.

TABLE 7 Nutritional condition of Las Cruces children as indicated by hemoglobin and serum ascorbic acid levels

CLASSIFICATION ACCORDING TO BESSEY ET AL. (11)	PER CENT OF CHILDREN			
	Hemoglobin		Serum ascorbic acid	
	Anglo	Spanish-Americans	Anglo	Spanish-Americans
	Girls (6 to 14 Years)			
Poor	0	3	16	25
Fair	35	54	18	27
Good	45	26	22	22
Excellent	20	16	44	26
	Boys			
6 to 12 years				
Poor	0	3		
Fair	39	47		
Good	36	28		
Excellent	25	23		
12 to 14 years				
Poor	0	0		
Fair	31	50		
Good	38	28.5		
Excellent	31	21.5		
6 to 14 years				
Poor			6	36
Fair			17	19
Good			29	27
Excellent			48	18

SERUM PROTEIN

Serum protein values for normal individuals usually fall between 6.5 and 8.4 gm. per 100 ml. (12). Low values may be found in protein deficiency. However, severe protein deficiency may be accompanied by concentration of the constituents in serum and a drop in blood volume, so that a decrease in serum protein per unit volume is not seen.

Serum protein values in the Las Cruces children ranged from 4.3 to 8.6 gm. with a mean of 6.3. There was no difference between means for boys and girls or Spanish-Americans and Anglos. Sixty-five per cent of all subjects had values below 6.5 gm. and 22 per cent, below 6 gm. In the Las Vegas study, the mean for all subjects was 6.4 gm. with 10 per cent of the Anglo and 22 per cent of the Spanish-American subjects having values below 6 gm. These mean values are lower than found in other surveys of school children. Investigators in Michigan found a mean of 7 gm. in blood samples from 390 children with all values but five between 6 and 8.6 gm. (13).

SERUM ALKALINE PHOSPHATASE

The determination of serum alkaline phosphatase is widely used in the diagnosis of certain pathologic conditions. However, even in normal individuals, serum alkaline phosphatase values are subject to considerable variation. Values in adults are low, while those in children rise sharply before and during adolescence.

Bessey and co-workers (10) found an average serum alkaline phosphatase value of 6.4 nitro-phenol units in their survey of New York school children. These workers concluded that values under 8 were satisfactory and those above 8, poor. In the Michigan study, referred to previously, levels ranged from 1 to 17 with a mean of 6.3 nitro-phenol units (14). Approximately 84 per cent of the values were between 4 and 9 units. In the Las Cruces survey, the values ranged from 1.5 to 12.7 units, with means of 5.8 for the boys and 5.6 for the girls. Differences between Spanish-Americans and Anglos were not statistically significant for girls at any age and for boys only at twelve years. Among all the subjects, forty-one or 11.9 per cent had values above the 8 units, considered by Bessey to be suggestive of poor nutritional condition.

The relatively early pre-adolescent growth spurt characteristic of girls was indicated by an increase in serum alkaline phosphatase at about the ninth year. By the twelfth year the serum alkaline phosphatase level of the girls had fallen and in many had reached adult levels. The changes were less regular for the boys and occurred approximately two years later, corresponding to the later onset of puberty in boys. Increased phosphatase levels in these children occurred at approximately the same time the greatest increases in height were found. However, because of the small number, the wide range of values found in normal individuals, and variation in the age at the onset of puberty, the significance of the difference in twelve-year-old boys may be questioned. The values for both boys and girls followed closely the pattern of the Michigan children, though the mean values were slightly lower.

SERUM ASCORBIC ACID

Blood ascorbic acid values vary widely because they reflect recent dietary intake of the vitamin. Considerable fluctuation in the serum ascorbic acid levels was to be expected, as it was not practicable to get fasting samples. A low value usually indicates poor ascorbic acid nutrition for an individual, but

a high value does not necessarily mean a satisfactory condition since blood levels may be increased temporarily by eating an ascorbic acid-rich food shortly before the blood sample is taken. However, non-fasting samples show the over-all nutritional condition of the group with respect to ascorbic acid. The serum ascorbic acid values found in this study ranged from zero to 2.68 mg. per 100 ml. serum. The mean for all subjects was 0.86 mg. The lowest mean value was 0.35 mg. in the twelve-year-old Spanish-American boys, and the highest, 1.39 mg., in the seven-year-old Anglo boys.

The mean serum ascorbic acid values in the Las Vegas study was 0.81 mg. There the subjects were asked to omit the meal immediately preceding the examination. Unlike the Las Vegas study, where differences in the serum ascorbic acid values of the Spanish-Americans and Anglos were not statistically significant, the differences between the Spanish-American and Anglo subjects in the Las Cruces survey were highly significant for both boys and girls. The mean values found in both of these New Mexican surveys are lower than in the surveys of 384 children in Michigan orphanages and 260 Utah children (15, 16).

For survey purposes, Bessey and Lowry (11) consider serum ascorbic acid values below 0.4 mg. per 100 ml. as poor; 0.4 to 0.6 as fair; and 0.7 to 1.0 as good; and above 1.1 mg. as excellent. According to this standard, over half of the Spanish-American children have been rated as "fair" or "poor," compared with approximately one-third of the Anglo girls and one-fourth of the Anglo boys. This is shown in Table 8.

This study was made during the spring and early summer. In a previous study, low initial serum ascorbic acid values were found in an examination of New Mexican school children in January, with still lower values in the same children six weeks later. These children had been examined because they had sore or bleeding gums. The gums healed slowly when crystalline ascorbic acid was given over a period of three to four months (17).

Height and Weight

The examination of these children included measurement of height and weight. In addition, other body measurements were taken, including chest, depth, width and circumference, iliac breadth, leg girth, and thickness of subcutaneous tissue. The Spanish-Americans were smaller than the Americans in each age-sex group, but the differences were not always statistically significant. A detailed report of the body measurements of the children will be presented elsewhere.

Summary

An earlier survey had shown the Spanish-American adolescents in a New Mexico community were smaller than their Anglo counterparts and had less adequate diets, lower blood level of some nutrients, and somewhat higher incidence of some physical signs of malnutrition. For these reasons, 365 school children, six to fifteen years of age in the elementary school of another community were studied in a survey which included seven-day food records, certain body measurements, and analyses of blood for hemoglobin, serum protein, ascorbic acid, and alkaline phosphatase.

As in the first survey, the Spanish-American children were smaller than the Anglos in the same age group, their diets were generally less adequate, and some differences in blood values were found. The Anglo children, both boys and girls, had significantly higher serum ascorbic acid values than the Spanish-Americans. Hemoglobin values were significantly higher for eight- and nine-year-old Anglo girls than for Spanish-American, but differences for the two groups of boys were insignificant at all ages. Differences in serum alkaline phosphatase and serum protein were not significant in the two groups.

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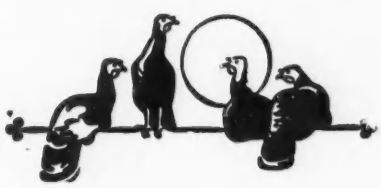
Correspondence Course for Supervisors

At the Pennsylvania State University, a non-credit, extension course for hospital food supervisors has been developed with the aid of the Liaison Committee of the Pennsylvania Hospital and Dietetic Associations. The first students were enrolled in September 1957 for the twelve month program. The course, which is carried on by mail, is open to out-of-state students on the same basis as those from Pennsylvania. Students may begin their course at any time during the year, but must complete the work within twelve months.

The course consists of twenty-three lessons (each lesson being the equivalent of three lectures) and a final examination. A certificate is issued on the satisfactory completion of the course.

A number of hospitals are also participating in the program as affiliated training units. The student is employed during the course of her correspondence course in the dietary department of a qualified participating hospital, working 6 hr. a day and spending 2 hr. more in a suitable place provided by the hospital for study and preparation of the correspondence lessons. After the introductory lessons, the student moves from one work area to another in the department to gain experience related to the lessons. To qualify as a participating hospital, the hospital must employ as the head of its dietary department, a member of A.D.A., and the hospital must be able to provide all of the work situations and experiences established for the course. The dietitian in each training hospital with the aid of a study manual, serves in the capacity of instructor for the student and may also monitor the written examinations, although an outside proctor designated by the University is used for the final examinations. The student's corrected lessons, assignments, and examinations are sent to the dietitian from the University.

To qualify for the course, a student must be a high school graduate or equivalent, demonstrate supervisory ability as well as interest in food preparation and service. Endorsement by the hospital's administrator and dietitian is needed, as well as a health examination. Cost of the course to the student or the hospital is $59.45.—*Abstracted from "Training Supervisors by Mail" by R. E. Silvester, E. A. Atkinson, and R. A. Jumpf. Hospitals 32: 54 (June 1), 1958.*



Calories and Essential Amino Acids in an Experimental Diet[1]

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THIS REPORT deals with the quantitative determination of the energy value and the content of essential amino acids in an experimental diet during the fifth period of its use in a study of the human utilization of ascorbic acid. The subjects consuming the diet during the first four three-week periods maintained their weight within narrow limits, although they were allowed to eat *ad libitum* such foods as bread, cinnamon rolls, cookies, jelly, margarine, sugar, and milk. Such a study seemed desirable in that the diet, in its variety of foods, more nearly approached customary eating habits than is common in experimental conditions, yet the diet was simple compared with the variety of available foods.

In light of the recently published daily requirements of women for the essential amino acids (1-9) and especially the requirements of methionine, determined in the presence of cystine (6), and phenylalanine in the presence of tyrosine (3), it was of interest to determine also the adequacy of a controlled laboratory diet, which furnished to the respective subjects 89, 92, 97, and 100 gm. protein daily. Women on self-selected diets (10-12) and young women (13, 14) on controlled laboratory diets have been shown to be below or near the minimum daily requirements of methionine and phenylalanine (2) as compared with Rose's (15) requirements for men for these amino acids.

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Procedure

THE DIET

A quantitative record of the diet for sixteen consecutive days in the summer of 1955 was obtained for each of four subjects. The four-day menu cycle is shown in Table 1. There were no dietary supplements except synthetic ascorbic acid which was the variable in the utilization study. The only control of food intake was the requirement of ingestion of at least ½ pt. milk a day and of complete consumption of each fruit and vegetable whenever it appeared in the menu.

The weighed portions of fruits and vegetables were: applesauce, 112 gm.; pears, 70 gm.; raisins, 20 gm. (when eaten raw)—40 gm. (when used for cooking); carrots, 60 gm.; green beans, 60 gm.; onions, 55 gm. raw (16 gm. when sautéed for soup); apple juice, 233 gm. (once per menu cycle), plus 25 gm. each at lunch and dinner (to dissolve the ascorbic acid). Other foods weighed at the time of serving were: breakfast cereals, cinnamon rolls, gingerbread, sponge cake, and angel cake. Each slice of bread from several loaves was weighed, as were also single cookies from several lots, to find the average weight per slice and per cookie. These averages were applied to the count of slices and cookies eaten by each subject. Each subject's proportionate part of a loaf of corn bread (average weight per loaf was known) was recorded. Grits weighed before cooking, were divided, as was heated canned hominy, into four approximately equal servings. Jelly, sugar, and margarine were eaten from a supply weighed for each subject at the outset and replenished as needed.

There were 84 gm. (3 oz.) ground meat per person in the standardized portion of hamburger, meat loaf, and meat balls; of chicken meat, 63 gm.

TABLE 1 **Four-day menu cycle**

BREAKFAST	NOON MEAL	EVENING MEAL
	First Day	
Shredded Ralston with top milk and sugar	Scrambled eggs	Hamburger
	Green beans	Grits with margarine
Hot stewed raisins	Whole wheat bread	Green beans
Toast, white	Margarine	Pears
Margarine	Applesauce	Angel cake
Jelly	Cookies	Milk
Milk or coffee	Milk	
	Second Day	
Applesauce	Welsh rarebit on white bread toast	Meat loaf
Bacon	Green beans	Hominy
Cinnamon rolls	Hot gingerbread	Carrots
Margarine	Apple juice	Margarine
Jelly	Margarine	Cookies
Milk or coffee		Milk
	Third Day	
Pears	French onion soup with white bread croutons	Swedish meat balls
Oats with top milk and sugar	Green beans	Green beans
	Cottage cheese	Whole wheat bread
Margarine	Raisins	Margarine
Jelly	Applesauce	Pears
Toast, white	Cinnamon rolls	Angel cake
Milk or coffee	Milk	Milk
	Fourth Day	
Applesauce	Peanut butter	Creamed chicken on hot corn bread
Bacon	Jelly	
Cinnamon rolls	Margarine	Carrots
Margarine	Whole wheat bread	Applesauce
Jelly	Green beans	Cookies
Milk of coffee	Sponge cake	Milk
	Hot chocolate	

(2¼ oz.). Each person had four eggs per cycle, two in scrambled eggs, one in rarebit, and the fourth provided in the homemade gingerbread, sponge cake, cinnamon rolls, and cookies. Total milk as a beverage approximated 1 pt. for the man (BS), 1½ pt. for each of the three women (MS, EW, JW).

ANALYTICAL

Energy values were determined for the foods as eaten with the aid of a Parr oxygen bomb calorimeter, adiabatic type (16). Samples were prepared as three types of composites: (a) one of the foods eaten in different amounts (requiring a separate composite for each of the four subjects in each of the four cycles and including cooked oats, corn bread, white and whole wheat bread, rolls, angel cake, sponge cake, gingerbread, brown and white cookies, broiled bacon, meat balls, milk, cocoa, peanut butter, jelly, sugar, Coca-Cola); (b) one of the meat preparations eaten in the same amount (meat loaf, hamburger, creamed chicken); and (c) one of the fruits and vegetables (applesauce, raisins, pears, apple juice, green beans, carrots, onion soup) plus cooked grits, Wheat Chex, scrambled eggs, Welsh rarebit, and cottage cheese. Margarine was analyzed separately. The meat composite consisted of one serving of each kind included. Each of the other composites was composed of 10 per cent of each food included except for onion soup, for which one-fourth of the total batch was used. Each composite was made into a slurry using a Waring Blendor and stored in a freezer until anaylzed.

Duplicate aliquots of each thawed sample were weighed into tared aluminum moisture dishes, to the fourth decimal place, on an analytical balance. The samples were dried in an electric forced-draft oven at 60° C. for 72 hr. or until no visible moisture was present. The drying to constant weight was then completed in a vacuum at 30 mm. pressure at 60° C. for 15 to 20 hr. Percentage moisture and dry matter were calculated for each sample.

The dry material was ground in a mortar to pass a 60-mesh screen. This fine powder was made into pellets weighing approximately 1 gm. each, by the aid of a Parr pellet press. These were stored in aluminum moisture dishes in a vacuum desiccator containing sulphuric acid until burned in the bomb calorimeter. Calorimetric determinations were made in duplicate for each sample.

Samples for determination of amino acids were grouped in the following manner previously shown to be advantageous (10): a "cereal composite" consisting of breads, cakes, cookies, rolls, and dry breakfast cereals; a "food mixture," consisting of

fruits and vegetables; meats; eggs; cheese; peanut butter; hominy; and milk. All aliquots of the foods except the "cereals" were mixed in a Waring Blendor and frozen until analyzed. The cereal mixture was further prepared for analysis by drying in a Freas oven and then to constant weight in a vacuum oven at 60°C., followed by thorough grinding in a mortar.

Two gm. of the dry cereal mixture; 25 gm. of the food mixture; 3 gm. meat, eggs, or cheese; and 10 gm. milk were weighed in duplicate for both acid and alkaline hydrolysis of the samples. The samples were hydrolyzed for 8 hr. at 15 lb. pressure in 50 ml. of 2.4 normal hydrochloric acid for all amino acids except tryptophan. These samples were autoclaved with 10 ml. of 4 normal sodium hydroxide for 15 hr. After autoclaving, the samples were filtered, adjusted to *p*H 6.8 and diluted to 100 ml. These were further diluted for assay as needed.

The hydrolysates were analyzed for eight amino acids by the microbiologic method of Steele *et al.* (17). The assay organism used was *Leuconostoc mesenteroides* P-60. The acid produced was titrated with 0.02 normal sodium hydroxide to a *p*H of 6.8 using a Beckman *p*H meter.

Results and Discussion

ENERGY

The data given in Table 2 make possible a comparison of the determined and calculated caloric values of the diet in relation to the weekly weight record of each subject. Calculated values were derived by using the determined total weight of each food eaten during the sixteen days and the appropriate average energy values in Agricultural Handbook No. 8 (19). From these products, average calories per day were found.

Calculated values were lower than determined for each subject; by 4.4 per cent for the man; and for the women: JW, 9.1; EW, 4.1; MS, 13.5 per cent. The differences between calculated and determined values did not appear attributable to any particular food group. Apparently average values used for calculation did not fit the experimental diet. The determined energy intake was, in general, in keeping with the weight of the subjects. The extreme difference among the women was 190 calories and their average was 992 calories below the intake of the man. The caloric intakes per pound of body weight were similar for the four subjects: MS, 21.5; BS, 19.3; EW, 20.0; JW, 19.0 (Table 2). Both determined and calculated calories (Tables 2 and 3) exceeded the recommended allowances (27). Weight maintenance on the high caloric intake was probably due to the greater activity of the subjects (ages of women, 29, 38, and 66 years; the man, 36 years) than defined for the "reference" man and woman.

The differences between weight at the start and at the finish of the fifth period (Table 2) included three losses which ranged from 8 oz. to 2 lb. 4 oz. and one gain of 1 lb. These values were comparable with the weight changes in the previous four periods when the average of the gains was 14 oz. and the average of the losses was 1 lb. The woman who gained had the highest (determined) intake and her activity as a laboratory technician was considered moderate, whereas the other two women engaged in the laboratory work of this study and the man were considered to be very active. The subject who gained (MS) consumed more cinnamon rolls during the first three menu cycles than in the last cycle.

The calculated energy values for the women in this study were comparable with those for seven of eight women (2045 to 2330 calories) who were subjects in a four-month study of iron metabolism by Frank and Johnston (20). Their subjects' weight losses, with one exception (0.66 lb.), ranged from 2.9 to 4.2 lb. and exceeded the three losses (0.51, 1.25, and 2.25 lb.) in our three-week study.

Since determined calories in this study exceeded calculated values (Table 2), the difference was the reverse of that reported by Kaser *et al.* (21) for ten one-day diets in spring, which duplicated diets found in a previous survey of middle Tennessee families. They reported calculated values to exceed determined values by 2.4 to 33.3 per cent with five of the ten differences above 15 per cent.

There is an interesting agreement between the size of servings of several foods in this study and of the "suggested weights of average portions" in

TABLE 2 **Daily caloric values, determined vs. calculated, over three-week period as related to body weight**

SUBJECT	CALORIES					NUDE BODY WEIGHT†		
	Determined		Calculated	Determined minus calculated*	Determined in relation to body weight	Average	Greatest change	Change over period
	Range	Average						
					average/lb. body weight	*lb.*	*lb.*	*lb.*
				%				
MS ♀	2228–2881	2570	2222	13.5	21.5	119½	1¾	1
BS ♂	3330–3578	3492	3340	4.4	19.3	180¾	1¼	−1¼
EW ♀	2424–2732	2539	2436	4.1	20.0	127	1½	− ½
JW ♀	2323–2429	2380	2152	9.1	19.0	125¼	2¼	−2¼

*Determined value = 100%.

†Subjects weighed weekly to nearest ¼ lb. before breakfast without clothing and with bladder empty, on the same platform-type scale (18).

TABLE 3 **Average daily caloric and nutrient intake of experimental subjects compared with the recommended dietary allowances**

SUBJECT	CALORIES	PROTEIN	CALCIUM	IRON	VITAMIN A	THIAMINE	RIBOFLAVIN	NIACIN
		Intake of Experimental subjects						
		gm.	*gm.*	*mg.*	*I.U.*	*mg.*	*mg.*	*mg.*
MS♀	2222	91.6	1.34	15.8	7854	1.58	2.78	12.6
BS♂	3340	100.3	1.27	21.2	8296	2.00	4.02	15.6
EW♀	2436	88.6	1.30	14.8	9006	1.49	2.40	12.1
JW♀	2152	96.7	1.44	17.0	6735	1.80	2.80	12.6
		Recommended Dietary Allowances						
25-year-old woman	2185*	55	0.8	12.0	5000	1.2	1.4	12.0
65-year-old woman	1710*	55	0.8	12.0	5000	1.0	1.4	10.0
35-year-old man	2897†	65	0.8	12.0	5000	1.6	1.6	16.0

*Recommended allowance of 2300 (25 yr.) and 1800 (65 yr.) reduced by 5% as adjustment for climate.
†35 yr. interpolated and reduced 5% as adjustment for climate.

the study of North Central Region workers (22) of the size of servings in the self-selected weighed diets of 242 women of thirty to ninety-two years of age, distributed in Iowa, Michigan, Minnesota, Nebraska, South Dakota, and Wisconsin. These authors suggest: for carrots, 55 gm.; green beans, 65 gm. (vs. this study 60 gm. for both vegetables); ground meat, 70 gm. (vs. 84); chicken, 75 gm. (vs. 63); and bread, 35 gm. (vs. 34.3 whole wheat and 27 gm. white). Suggested portions of pears (115 gm.) are greater than in this study (70 gm.), and for milk less, 215 gm. (vs. 250 gm.).

CALCULATED NUTRITIVE VALUES

A further evaluation of the experimental diet was made by calculating with the aid of values in Agriculture Handbook No. 8 (19) the seven nutrients shown, along with calculated calories (Table 3). Each subject exceeded the recommended allowances (27) in every item, except for niacin for BS (15.6 mg. vs. 16.0 mg. recommended). The excess is especially conspicuous for protein, calcium, iron, and thiamine. Ascorbic acid is not included in Table 4 because it was supplied as a synthetic supplement. At the lower level of supplement (1.5 mg. per kilogram), the intakes of this vitamin were above the 70-mg. allowance: for MS, 81 mg.; BS, 124; EW, 87; and JW, 86 mg.

That protein should so far exceed the allowance (by 55 per cent for the man, and 61, 75, and 84 per cent for women) is rather surprising since the amounts of protein foods were not excessive—meat 2¼ or 3 oz. once per day, an average of one egg per day, and 1 to 1½ pt. milk per day. Calcium was furnished chiefly by milk (55 per cent of the total for the man and about two-thirds for the women). The remainder of the calcium came in similar proportions (12 to 15 per cent) from the protein foods and cereals. The generous supply of iron came from cereals to the extent of 39 to 47 per cent of the total. Enriched white flour was used for the cinnamon rolls; the flour used in making the whole wheat bread was equal parts of 100 per cent whole wheat and enriched white flour; the gingerbread contained only whole wheat flour, and also molasses and egg. The meats, fruits, and vegetables each supplied about 25 per cent of the total iron. The cereals supplied 53 to 64 per cent of the thiamine, and milk supplied similar proportions of riboflavin.

Judged by weight changes, calories were definitely adequate for two of the women, one of whom gained 0.99 lb. and the other lost 0.51 lb. The diet was probably adequate for the man who lost 1.25 lb. In a previous period on the same diet, this subject gained 0.24 lb. The loss of 2.25 lb. for the third woman was due largely to increase in activity during this period; in four previous periods on the same diet, her losses were 2.0 lb., 0.75 lb., 0.25 lb., 1.0 lb.

AMINO ACIDS

In this study, the intake per subject of each amino acid was so uniform from cycle to cycle that average daily consumption over the four cycles is shown in Table 4 where calculated protein intakes are also included. The values from each amino acid were similar for the three women and one man. However, JW, who had the greatest milk consumption, had slightly the highest intake of all amino acids except phenylalanine and tryptophan which were identical with the man's intake. The greatest range within any four-cycle group for any amino acid was 0.57 (for leucine, one subject only) where values for that four-cycle group were approximately 6 gm. Three-fourths of the maximum differences within thirty-two menu-cycle groups were below 0.25 gm.; of these, fourteen were less than 0.15 gm.

Table 4 also contains "safe" intakes suggested by Rose (15) and Rose *et al.* (23) and the requirements of specified amino acids as determined more recently by other workers (1-9). At the levels of protein intake in this study, the consumption of most of the essential amino acids was well above the levels of safe intake tentatively recommended by Rose (15) for men. For example, intakes of isoleucine, leucine, lysine, and threonine were approximately six times the minimum "safe intakes" of Rose. Valine was five times, tryptophan four times, while phenylalanine and methionine were respec-

TABLE 4 Average daily consumption of the essential amino acid of experimental subjects compared with minimum intakes determined by various investigators

SUBJECT	ISOLEUCINE	LEUCINE	LYSINE	METHIONINE	PHENYLALANINE	THREONINE	TRYPTOPHAN	VALINE	PROTEIN (calculated)
				Intake of Experimental Subjects					
	gm.	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*
MS	4.11	6.08	4.81	1.86	3.55	3.10	0.93	4.05	91.6
BS	4.18	6.32	4.76	1.92	3.83	3.17	1.00	4.13	100.3
EW	3.94	5.71	4.70	1.78	3.44	2.95	0.90	3.86	88.6
JW	4.45	6.65	5.09	1.98	3.83	3.34	1.00	4.41	96.7
				Minimum Intakes					
Rose (men graduate students) (15, 23)*	0.7	1.1	0.8	1.1	1.1	0.5	0.25	.08	—
Leverton *et al.* (women college students) (1-5)	—	0.62	—	—	0.22†	0.31	0.16	0.65	—
Clark *et al.* (5 men, 5 women; 23 to 29 years old; cereal = ½ nitrogen in diet) (7)	—	—	0.5-0.9	—	—	—	—	—	—
Jones *et al.* (college students and staff; 19 to 43 years old) (6)	—	—	0.4-0.5	—	—	—	—	—	—
Swenseid *et al.* (9)	0.25-0.45	—	—	0.10‡ 0.15-0.55#	—	—	—	—	—
Swenseid and Dunn (8)¶	0.25 or 0.30	0.6	0.8	0.2	0.2	0.275	0.15	0.55	—

*"Safe" intakes, as recommended by Rose, are twice the levels of minimum intake.

†If 0.9 gm. L-tyrosine also in the diet; if no tyrosine, as much as 0.8 gm. phenylalanine might be needed.

‡Along with 0.075 gm. cystine, sufficient for three subjects.

#When 0.2 gm. cystine present.

¶Minimum levels of all eight amino acids fed simultaneously; also included 0.45 gm. cystine and 0.9 gm. tyrosine.

tively three and two times the Rose minimum. Compared with the recently determined requirements, the factor of safety is still greater, as seven of the eight amino acids are approximately nine to ten times the intake to effect nitrogen balance in the several experiments. Lysine intake was about five times the requirement level found by three investigators (6-9). The methionine consumed daily by the subjects in this study was never above Rose's "safe" level of 2.2 gm. This recommendation, however, was based on experiments with a synthetic diet that contained no cystine (15), and it probably does not apply to natural cystine-containing diets such as these subjects were consuming.

The experimental diet supplied the essential amino acids in approximately the same amounts as given by Block and Bolling (24) for the "average American diet," except that methionine was about two-thirds as much and phenylalanine slightly over three-fourths as much. The cystine and tyrosine in the diet would have supplementary value for these two amino acids. The proportion of amino acids in this diet was fairly comparable with the minimum requirement levels used simultaneously by Swendseid and Dunn (8), though lysine was a little low compared with their study. Elvehjem (25) has observed that if a diet contains good quality protein and approximates a level of 60 gm. protein, the supply of amino acids will probably be adequate in amounts and in a ratio compatible with optimal metabolism. The same should be true for a more generous supply of good quality protein as in the diet for this study. The findings in this study add emphasis to Reynolds' observation (26) that there is no need to add amino acids to a diet which includes even small amounts of meat, eggs, and milk.

Summary and Conclusions

The food consumption of each of four subjects was determined quantitatively in an experimental diet employed to study the human utilization of ascorbic acid. The three women subjects, one moderately and two very active, were twenty-nine, thirty-eight, and sixty-six years of age; the one man of thirty-six years was very active. Energy values were determined with the aid of a bomb calorimeter. The essential amino acids were determined microbiologically.

Determined calories exceeded calculated by 4.4 per cent for the man and by 4.1, 9.5, and 13.5 per

cent for the women. Energy values were higher than the Recommended Dietary Allowances.

Intakes of the eight essential amino acids were generous. They were practically the same for a given acid in each of the four menu cycles, and differences between subjects were minor. Intakes of isoleucine, leucine, lysine, and threonine were each approximately six times the "safe intake" of Rose; of valine, five times; tryptophan, three times; and methionine, two times. Compared with recently determined requirements, the factor of safety was still greater, as seven of the eight amino acids were approximately nine to ten times the intake necessary to effect nitrogen balance. Lysine was about five times the reported requirement. The proportions of the amino acids were similar to those in the "average American diet" and may be said to be good, since high quality proteins were in the diet, and the amount of protein was calculated to be 89, 92, 97, and 100 gm. for the four subjects.

This diet, while more varied than is common for experimental use, was simple considering the available supply of foods. Without excessive quantities of any food being eaten, the diet according to its calculated values, supplied more than the 1953 Recommended Dietary Allowances.

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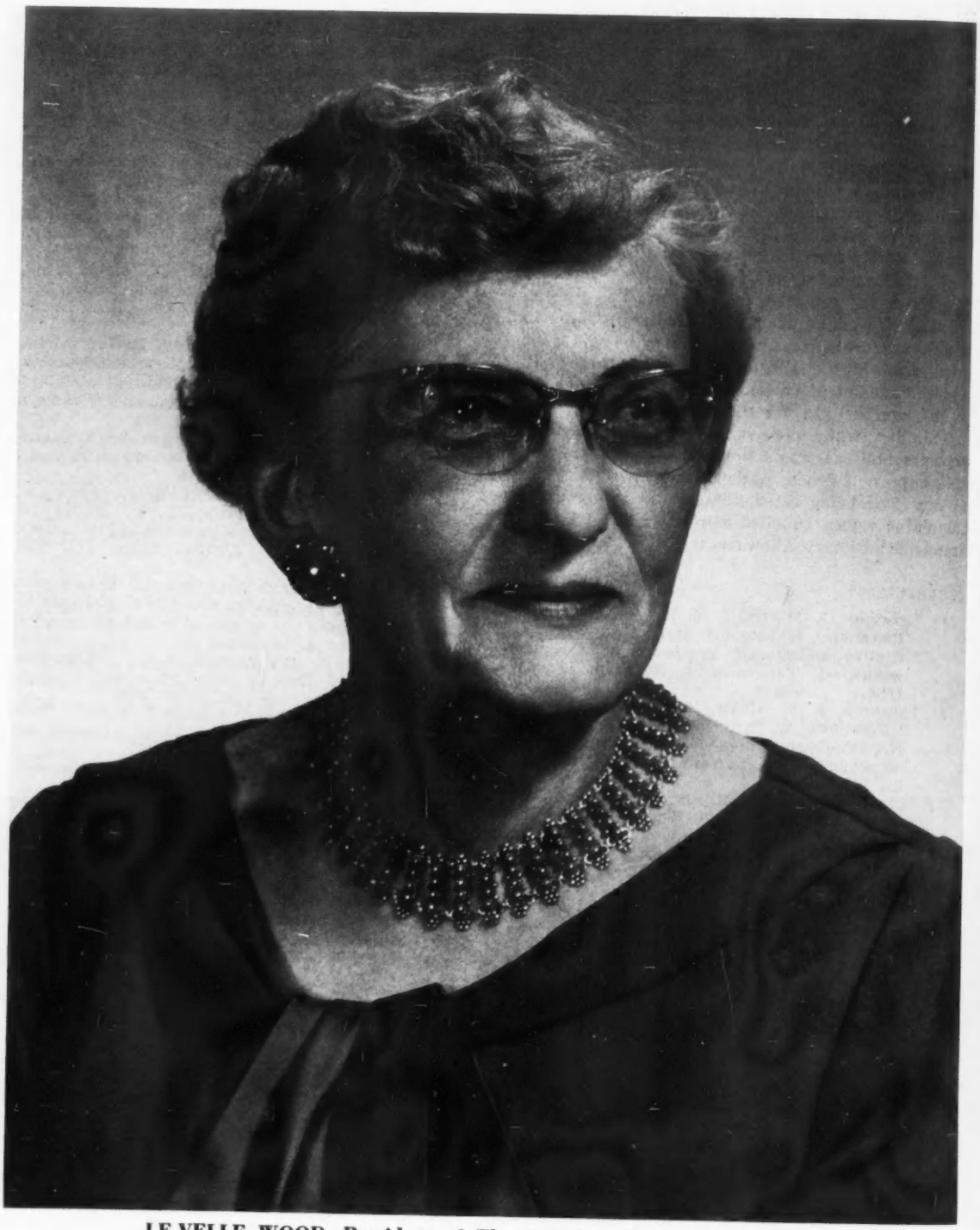
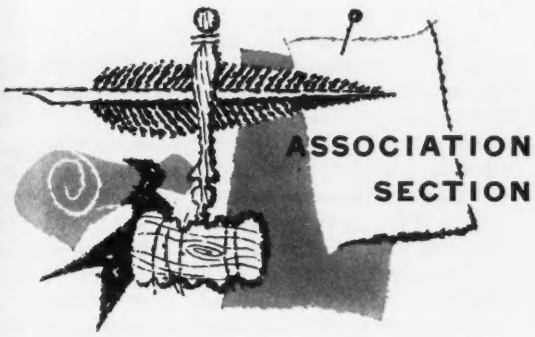


LE VELLE WOOD, President of The American Dietetic Association



LeVelle Wood
President, The American Dietetic Association

THE SPIRIT of pioneers is not new in The American Dietetic Association. The heritage from those noble and far sighted women who founded the Association and guided it through difficult early years is symbolized in the life and spirit of LeVelle Wood, the new President of our Association.

LeVelle Wood's two great-grandfathers traveled across the country in covered wagons and staked their claims in the state of Oregon. Her father was a farmer and a school teacher, having graduated from Oregon State College in 1896. Her mother had imagination and a sense of romance as evidenced by the names chosen for the four daughters—LeVelle, the oldest, Oleta, Delpha, and Thella. LeVelle was born in Corvallis. Shortly thereafter, the family moved to a farm and LeVelle went to the same country school her mother had attended. Close ties with family and friends early became an important factor in her life.

Following graduation from Oregon State College, Miss Wood taught home economics, science, and mathematics in a small central Oregon high school for one year, after which she went to the Oregon State Normal School. Here she had the distinction of being the youngest member of the faculty and the Head of Home Economics. She resigned after five years, enrolled as a student under Mary de Garmo Bryan at Columbia University and obtained her master's degree in institution management.

In the fall of 1928, LeVelle Wood and Bessie Brooks West joined the faculty at Kansas State College to begin the new Department of Institution Management. There was no text available for their courses, so they wrote one.[1] This book has enjoyed phenomenal popularity over the years, has undergone two revisions, and is still the only book of its kind.

The depression intervened and threatened disaster to college enrollments. Miss Wood, then Assistant Professor and Director of Food Service in the Women's Residence Hall, conceived the idea of operating the hall on a cooperative basis. For ten years no cooks were employed and senior students majoring in dietetics and institution management who were enrolled in the course on Organization and Administration functioned as student supervisors. Miss Wood gave unstintingly of her time, teaching and directing every facet of this unique arrangement. Many of our present-day dietitians obtained their backgrounds and inspiration in those early classes. One of them wrote: "It took a woman with a pioneering spirit, courageous foresight, neverending patience, and a deep devotion to professional development to undertake, as a laboratory for dietetic and institution management majors, the complete operation of a residence hall for 130 women. While performing what today is considered the impossible, Miss Wood personally supervised as many as twenty students each semester in activities of food production and service from 6:00 a.m. to 8:00 p.m. Constantly she was instilling professional pride, personal confidence, and high standards in these women. The thoroughness and exactness of such training unquestionably raised standards in food service throughout the country."

Adventures Abroad

The year 1937-38 brought an interesting interlude from campus life when Miss Wood left Kansas State for a sabbatical leave. Starting out to see the world, she went first to the Orient with a tour group led by Ava B. Milan, Dean of Home Economics, under whom she had been graduated. Miss Wood remained in Japan several months to make a study for the Y.W.C.A. of the housing and feeding of students from kindergarten to university. A significant sequel to this experience was that the young Japanese woman who was her guide and interpreter later came to the United States to study institution management at Kansas State College. Resuming her world tour, Miss Wood visited Burma, India, Egypt, France, and England. She returned to Kansas State College in the autumn of 1938.

In 1943, when the residence hall was occupied by the Armed Forces, Miss Wood obtained a leave of absence from the College, joined the American Red Cross and was off for another adventure. The first seven months overseas she served as Assistant Director of the Empire Club in Oran, Algeria. Here, 20,000 enlisted men came daily for recreation, movies, button sewing, package wrapping, showers, music and language classes—in fact everything from rat poison to advice on etiquette was requested.

The next fourteen months were spent in Naples, Italy. There, Miss Wood was responsible in part for the snack bar food for the Red Cross clubs in this

[1] WEST, B. B., AND WOOD, L.: Food Service in Institutions. 3rd ed. New York: John Wiley & Sons, Inc., 1955.

area. It was her job to find and purchase food supplies, help train civilian workers, and keep bakeries and ice cream plants in operation. She drove a jeep and the thrilling experiences of these days would make an interesting book. As one example of her versatility there is the story of the night one worker awakened her in the wee small hours to inform her "no aqua". This meant there was no power for refrigeration. Miss Wood dressed hastily, jumped into her jeep, and drove to the city water works where she talked the superintendent into letting the water flow just a bit more so the ice cream machines and freezers would operate. Those who know her best can understand how her selflessness and untiring interest in others made the Red Cross assignment particularly suited to her. Improvising came naturally, and no situation daunted her enthusiasm or lessened her concern for the welfare of others.

Work at Ohio State

V-E Day came in May 1945, and Miss Wood returned to the States in October 1945. She accepted a temporary appointment at the headquarters office of The American Dietetic Association as Director of the Placement Service. In the fall of 1946, she came to The Ohio State University as Chairman of the Division of Institution Management in the School of Home Economics. Here her outstanding contributions include the development of close cooperation between the Department of Business Administration and the School of Home Economics in the promotion of a curriculum in restaurant management. She organized a program for dietetic interns which was the first administrative internship to provide an opportunity to obtain a master's degree concurrently. She has cooperated with The Ohio State University Hospital dietetic internship in providing courses in administration and in equipment. The esteem in which she is held by students is exemplified by an occasion which recurs many times. When courses offered by Miss Wood are mentioned to dietetic interns planning their courses, the wide eyed students ask, "*the* Miss Wood?" Those who do not know her personally know her by her book which has been a part of the background of practically every intern since 1938.

At The Ohio State University her honors and activities have included membership on the Faculty Council and the University Placement Committee. She was elected to honorary membership in Phi Upsilon Omicron and is Chairman of the Building Expansion Committee for the School of Home Economics. For several years Miss Wood has been in charge of credentials and placement for the School of Home Economics. She is so deeply interested in the personal welfare of each alumnus that it was difficult to convince her that some of this recordkeeping should be delegated to an assistant as the pressure of professional duties increased. She is advisor to undergraduate and graduate students majoring in dietetics and institution management and to new international students when they first enroll in the School of Home Economics. She is advisor on institution management research to the Ohio Agricultural Experiment Station staff.

Miss Wood has made many other contributions to the profession of dietetics too numerous to mention in this sketch. In the summer of 1958, while carrying out the duties and responsibilities of President-Elect of The American Dietetic Association, she directed a school lunch supervisors' workshop, the first in Ohio for graduate credit. Immediately thereafter, in cooperation with the Ohio State Restaurant Association, she conducted the first Food Production School for Head Cooks and Managers.

Professional Contributions

In addition to her educational activities and loyal and faithful membership in The American Dietetic Association, Miss Wood has served as Treasurer of the Association, as Delegate and Chairman of the Delegates from Ohio, and as Chairman of the Program Planning Committee for the national convention. She has served on committees of the American Home Economics Association and the American Association of University Women at the national level and is a member of Delta Kappa Gamma. LeVelle Wood is a tireless worker who rarely says "no" to a request for help from her associates or workers in allied professions and trade groups. Characteristically, she shows great concern for detail. Her outgoing, warm personality makes her a friend of everyone, so much so, that she seems "at home" in almost any situation.

If travel and her interest in people can be considered her avocation, it is because LeVelle Wood knows how to have a wonderful time. She loves to "go places and do things," as evidenced by her trip around the world and her extended tour of old and new scenes before and after the meeting of the International Congress on Dietetics in Rome in 1957.

The dictionary defines a pioneer as "one who opens the way for others". The American Dietetic Association can look forward to a rich year under the leadership of its new President. The pioneering kind of ingenuity, courage, and spirit of adventure which is exemplified in the ancestry and in the life and work of LeVelle Wood will be of immense value in meeting the challenges which lie ahead for the profession of dietetics.—*Martha N. Lewis, Associate Professor, School of Home Economics and Department of Preventive Medicine, The Ohio State University, Columbus.*

Mary Swartz Rose Fellowship

IN 1948, the Nutrition Foundation, Inc., made a grant to The American Dietetic Association, establishing the Mary Swartz Rose Fellowship which annually provides $1000 for graduate study and research in nutrition or allied fields. The Fellowship honors a pioneer in the field whose accomplishments personalize the spirit of the award.

Provisions of qualification for the Mary Swartz Rose Fellowship follow:

Applicants must: (a) be members of The American Dietetic Association; (b) have ranked in the upper quartile of their respective graduating classes and have majored as undergraduates in a field closely related to that in which the Fellowship is sought or have gained equivalent training later; and (c) show promise of making a valuable contribution to the profession.

The recipient of the Fellowship is selected by the Awards, Scholarship, and Loan Fund Board of The American Dietetic Association, a six-member board appointed by the Association's President, subject to the approval of the Executive Board. The President and President-Elect of the Association are ex-officio members of this board.

Nominations of candidates shall be accompanied by adequate evidence of their training and ability to pursue their plans in a satisfactory manner. It is expected that applicants interested in newer aspects of nutrition or allied fields shall receive consideration.

Nominations for the Fellowship and all supporting recommendations shall be in the hands of the Executive Director of the Association not later than *February 15, 1959*. Selection of the recipient and notification of the candidate chosen shall be made not later than April 1. Unsuccessful candidates shall be notified at the same time.

A.D.A. Loan Fund

TO ENCOURAGE graduate study in the field of nutrition and dietetics, The American Dietetic Association maintains a Loan Fund for Graduate Study. Members planning to enroll in graduate schools are urged to make use of this fund. Policies concerning these loans follow:

Eligibility: Any person who has been an active member of The American Dietetic Association for at least two years and wishes to pursue graduate study leading to an advanced degree may apply for a loan. No more than three applicants from any one state or territory can be considered.

Home economics graduates about to enter approved dietetic internships are also eligible for loans, when funds in the Graduate Loan Fund exceed by a wide margin the demands of members seeking assistance for graduate study.

How and When to Apply: Applications for loans should be made on special forms available from the A. D. A. office in Chicago. Application must be accompanied by full credentials, including transcript of college credits, photographs, letters of reference, and a personal letter stating plans for graduate work, time and place contemplated, degree sought, and future plans. Applications must be endorsed by an officer or a delegate of the state dietetic association to which the member belongs, and by one other Association member familiar with the applicant's professional work.

Special regulations pertaining to dietetic interns applying for loans may be found on page 35 of the *Annual Reports and Proceedings 1951-1952, The American Dietetic Association.*

Amount of Loans, Interest, Repayment, and Security: Loans for graduate study in any amount up to $1000 may be made to qualified applicants, the total loans or installments to be adjusted according to circumstances. Loans to dietetic interns shall not exceed $500.

Interest on loans shall be charged at the rate of 2 per cent annually, beginning one year from the date of the loan. Repayment of principal should be be made as soon as possible to allow other members of the Association to benefit from the loan privilege. It is expected that all loans will be repaid within three years from the date of the loan.

Security for loans may be provided by promissory notes. Loans made to dietetic interns are to be cosigned by a responsible person, or may be secured by a life insurance policy naming A.D.A. as the beneficiary. Terms of loans may not be uniform, but may vary according to the facts in particular cases.

Selection of Loan Recipients: Final selection of recipients will be made by the Awards, Scholarship, and Loan Fund Board of the Association. The names of applicants and recipients of loans may be kept confidential if so requested.

M. Faith McAuley Memorial Loan Fund

Contributions from members of the Illinois Dietetic Association totalling approximately $1200 have been turned over to The American Dietetic Association to establish the M. Faith McAuley Memorial Loan Fund to help dietitians doing graduate work in food administration.

Applications for use of the M. Faith McAuley Memorial Loan Fund may be obtained from the Executive Director, The American Dietetic Association. Regulations governing the granting of loans from this fund are similar to those listed above for the general Loan Fund.

Other Financial Help

A number of state dietetic associations and approved dietetic internships also offer either scholarships or loans to help dietetic interns during their fifth year.

Lydia J. Roberts Essay Award

IN 1951, the Gerber Products Company made a grant to The American Dietetic Association offering a $500 annual prize for five years for the best essay on a subject in the field of the history of nutrition. This award was named for Lydia J. Roberts in honor of her outstanding contributions to the nutrition of children. In 1956, the company generously renewed its grant, so that the essay competition might continue for another five-year period. Subjects for the essays for the next three years are as follows:

1959—History of Dietary Use of Liver

1960—Changes in Beliefs and Food Practices in Pregnancy

1961—World Problems in Infant Care

Rules Governing the Award

The rules governing the Award for the second five years are as follows:

1. The Award shall be open to: any graduate student of nutrition in an accredited university; any dietetic intern in an internship approved by The American Dietetic Association; or any member of the Association. Previous winners of the Award are not eligible.
2. Essays shall be typed in triplicate, double spaced, and shall not be less than 15 or more than 20 pages in length, exclusive of appended references and appropriate illustrations.
3. Essays accompanied by separate vita of contestant shall be received by the Executive Director on or before June 1 of each year.
4. All essays shall become the property of The American Dietetic Association. Publication of the award-winning essay and any others submitted shall be at the discretion of the Association's Executive Board.
5. Essays shall be judged by a committee of three persons, to be appointed by the Executive Board of The American Dietetic Association. The names of the judges shall not be made public.
6. Essays shall be judged on the basis of original investigation and interpretation of source material; coverage of subject and final conclusion; and organization, style, and documentation.
7. The decision of the judges shall be final. No award shall be made in any year that the judges consider no essay merits an award.
8. The award shall be presented at the Annual Meeting of The American Dietetic Association or other occasion designated by the Executive Board.

Award Winners

The first recipient of the Lydia J. Roberts Essay Award was Felisa J. Bracken, who received in 1952 the $500 honorarium for her essay on "Infant Feeding in the American Colonies." This essay was published in the April 1953 issue of the JOURNAL.

Winner in 1953 of the Award was Dorothy Lefebvre Jefferson, whose essay on "Child Feeding in the United States in the Nineteenth Century" was chosen as best by the judges. This essay appeared in the April 1954 issue of the JOURNAL.

In 1954, recipient of the Award was Alice L. Wood, New York City. Her essay on "The History of Artificial Feeding of Infants" was published in the May 1955 issue of the JOURNAL.

Winner of the 1955 Award, for her essay on "Nineteenth Century Leaders of Infant Nutrition," was Geraldine G. Gardiner, St. Louis. This paper appeared in the April 1956 issue of the JOURNAL.

The 1956 winner was Dr. Floy Eugenia Whitehead, State University of Iowa, Iowa City whose winning essay, "Nutrition Education Programs for Children in the U.S. Since 1900," was published in the September 1957 issue of the JOURNAL.

Last year's recipient of the Award was Winifred M. Ayers, Chicago, for her essay on "Changing Attitudes Toward Overweight and Reducing," which appeared in the January 1958 issue of the JOURNAL.

Winner of the Award in 1958 is Suzanne Adams of Augusta, Georgia. Her winning essay is on the "Development of the Use of Vegetables in Infant Feeding."

Mead Johnson Awards

EIGHT GRADUATE awards in dietetics were announced at the Annual Banquet of The American Dietetic Association in Milwaukee on October 11, 1956. These awards have been made possible by an annual grant from Mead Johnson & Company, Evansville, Indiana. At the time, Dr. Helen A. Hunscher, Chairman of the Association's Awards, Scholarship, and Loan Fund Board, announced that the $5000 to be granted annually would be divided into two funds, with $2000 to provide two awards of $1000 each for advanced graduate study and $3000 divided so as to make possible six awards of $500 each for dietetic internships. Policies which apply to the granting of these eight annual awards have been worked out by the Awards, Scholarship, and Loan Fund Board and appear below.

Mead Johnson Awards to The American Dietetic Association for Dietetic Interns

A fifth year of education beyond a bachelor's degree is recommended in qualifying for membership in The American Dietetic Association. This imposes a financial problem for the young college graduate and his or her family which, in many instances, cannot be solved. The inevitable result is the diversion of potential dietitians to other occupations.

A grant from Mead Johnson & Company now makes it possible to offer annually six grants of $500 each to applicants selected by the Awards, Scholarship, and Loan Fund Board of the Association. To

qualify for the Award the applicant must:

1. Have completed a bachelor's degree from an accredited college or university with a major in: (a) foods and nutrition, (b) institution management, or (c) equivalent education requirements.
2. Have met the academic requirements for admission to an approved dietetic internship.
2. Show promise of being a valuable contributing member of the profession of dietetics.
4. Show evidence of financial need to attain the goal of an adequate education in dietetics.
5. Have been accepted for an approved dietetic internship.

The following is the procedure for selection of the six recipients of the Mead Johnson Scholarship Awards for Dietetic Interns:

1. Selection of the six recipients of Mead Johnson Awards shall be made by the Awards, Scholarship, and Loan Fund Board of The American Dietetic Association in accordance with the policy approved by the Executive Board.
2. Applications may be obtained on request from the Headquarters office of the Association.
3. Applications for the scholarships shall be submitted by interested college seniors or graduates to the Executive Director, The American Dietetic Association by March 15 of each year. Said application must include a transcript of college credits and pertinent information, including justification for the scholarship.
4. The six recipients shall be selected by a majority vote of the Awards, Scholarship, and Loan Fund Board of The American Dietetic Association. In case of a tie vote, the President of the Association shall cast the deciding vote.
5. Announcement of the scholarship awards shall be made and the monies made available to the recipient by the Executive Director one month prior to the beginning date of the internship.

Other considerations:

1. If for any reason the recipient fails to enter the internship, the scholarship shall be recalled.
2. The recipient is expected to practice in the field of dietetics for at least a year following the internship, barring unforeseen circumstances.

Mead Johnson Awards to The American Dietetic Association for Advanced Graduate Education in Dietetics

Mead Johnson & Company has made funds available to The American Dietetic Association for two $1000 grants for advanced graduate education in dietetics. The recipients are to be chosen by the Awards, Scholarship, and Loan Fund Board of The American Dietetic Association. Administration of the entire program is to be carried out by the Association.

To qualify for the Award an applicant must:

1. Be a member of The American Dietetic Association.
2. Intend to practice in the field of dietetics.
3. Appear to possess attributes for success in the practice of dietetics.
4. Need funds to help attain his educational goal.

The following is the procedure for selection of the recipients of the two $1000 grants for advanced graduate education in dietetics:

1. Selection of the two recipients for the Mead Johnson grants for advanced graduate education in dietetics will be made by the Awards, Scholarship, and Loan Fund Board of The American Dietetic Association in accordance with the policy approved by the Executive Board of The American Dietetic Association.
2. Recipients shall be selected by the majority vote of the Awards, Scholarship, and Loan Fund Board of The American Dietetic Association. In case of a tie vote, the President of the Association shall review the records and cast the deciding vote.
3. Any member of the Association may apply for or nominate one or more applicants.
4. Applications may be obtained on request from the Headquarters office of the Association.
5. Applications for the fellowships accompanied by complete, pertinent information and justification shall be sent to the Executive Director on or before February 15 of each year. Immediately on receipt of each nomination, the Executive Director shall send it to the Chairman of the Awards, Scholarship, and Loan Fund Board.
6. Applicants for the Fellowships shall have the following qualifications:
   a. Be a member of The American Dietetic Association.
   b. Have been accepted for or must have already embarked on a program of graduate study.
   c. Show need for financial assistance for the completion of his program of study.
   d. Be endowed with the attributes for success in the practice of dietetics.
   e. Show interest in and intention of continued practice in the field of dietetics.
7. The Board, in selecting recipients, shall give due consideration to:
   a. Those applicants who would be able to complete their graduate study without interruption if they received financial assistance.
   b. Family responsibilities which have made it difficult for the applicant to make adequate financial arrangement for his graduate education.
   c. Competent dietetic interns who should be encouraged to continue graduate study on completion of the internship. Such individuals would not have had the opportunity to earn and save for graduate study.
8. Each award of $1000 will be granted for a period of one year, the year to begin on September 1, the award to be paid in two equal installments.

CURRENT COMMENT

Influence of Nutrition Teaching on Adolescents' Eating Habits[1]

NAOMI KUNKEL[2] and
OLIVE HALL[3]

IN RECENT years the emphasis in home economics instruction has shifted. The girl or boy and his or her behavior have become of greater importance than subject matter alone. This change in theory and practice in education has caused the shifting of emphasis from the study of nutritional facts to attaining improved food habits.

The objective of this study was to analyze the knowledge and food practices of both boys and girls at the beginning and again at the completion of a one-semester co-educational foods course to determine changes in food habits. The five classes included forty-seven boys and thirty-nine girls who were seniors in one high school of Los Angeles County. Two specific questions provided the framework for the study:

(a) Does pupil-checking of food records result in improved eating habits?

(b) To what extent does instruction in foods courses in the senior year of high school help to change habits?

A three-day record of food intake, a habit check sheet, and objective tests were used at the beginning and end of the semester.

Three-Day Food Records

Eating habits at the beginning and again at the end of the course were observed to determine the extent to which behavior had changed. Evaluation of the Basic 7 foods in each student's diet for two three-day periods was made by the investigator according to a short method of analysis developed by Tinsley (1).

Since the Tinsley method was based on the 1945 standards of the National Research Council for elementary pupils, a study was made to compare ratings by this method with the 1953 allowances for persons sixteen to eighteen years of age. A detailed analysis was made of the three-day food records of thirty students. This group consisted of five boys and five girls at each of the three Tinsley ratings—poor, fair, and good. The score sheet seemed to differentiate similarly for the 1945 and 1953 allowances between poor and good records for nearly all of the nutrients (Table 1).

Improvement was greater among girls than boys, but more boys than girls had eaten recommended amounts at the beginning. The girls showed no improvement in the percentage who ate recommended amounts of citrus fruits, but they showed significant improvement in all other food groups. The percentage of boys who ate recommended amounts of green and yellow vegetables dropped from 37 at the beginning of the course in January to 21 at the end. Twenty-one per cent of the boys who ate recommended amounts of green and yellow vegetables in January continued to do so in May. The percentage of boys eating the recommended amounts of all other food groups increased in May.

Two of the classes (thirty-two students) made a complete dietary calculation of the foods eaten during the three-day period as recorded in January to determine whether *pupil-checking* of food records brought about improved eating habits as recorded in May. Each person in this group compared his or her individual record with the pertinent 1953 Recommended Dietary Allowances. Conclusions were drawn and each person made a statement of adequacy of each day's food record. The other three foods classes did not analyze their food records. This was done by the teacher. Although the difference was not significant statistically, 47 per cent of the students who analyzed their own records in January showed improvement as compared with 42 per cent who did not analyze their own records.

A control group of twelfth grade students composed of seventeen girls and twenty-one boys who were not studying foods, was used as a basis for comparison to help determine the extent to which changed behavior resulted from the subject matter taught in the foods classes. The foods group showed significantly greater improvement—44 per cent improved their ratings in May as compared with 11 per cent in the control group.

Fewer boys in the control group ate recommended amounts of vegetables, eggs, milk, and butter in May than did in January. The same percentage eating recommended quantities of other fruits and vegetables and bread and cereals in January contined to do so in May. The number who ate recommended amounts of citrus fruits and potatoes increased. Fewer girls in the control group in May ate recommended amounts of green and yellow vegetables, citrus fruits, potatoes, other fruits and vegetables, meat, eggs, bread and cereals, and butter or fortified margarine. More drank recommended amounts of milk, however.

[1]Received for publication October 14, 1957.
[2]Homemaking Teacher, Alhambra, California.
[3]Assistant Professor of Home Economics, University of California, Los Angeles.

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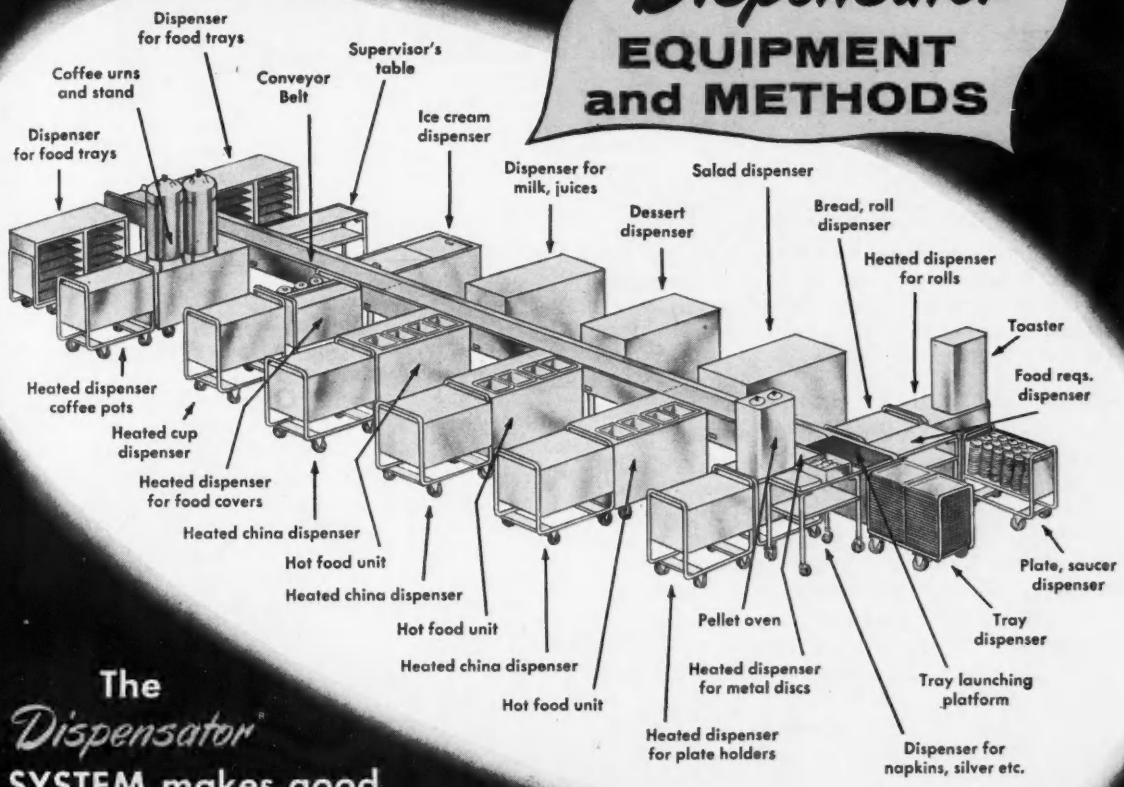

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TABLE 1 Comparison of 1953 Recommended Dietary Allowances and average ratings in Tinsley rating system

RATING STANDARD	CALORIES	PROTEIN	CALCIUM	IRON	VITAMIN A	THIAMINE	RIBOFLAVIN	NIACIN	ASCORBIC ACID	VITAMIN D
					Girls					
		gm.	*gm.*	*mg.*	*I.U.*	*mg.*	*mg.*	*mg.*	*mg.*	*I.U.*
Recommended allowance	2400	75.00	1.30	15.0	5000	1.200	1.90	12.0	80	400
Tinsley										
Good	2247	71.96	1.08	11.4	8198	0.980	2.37	11.6	91	44
Fair	2038	72.00	1.10	15.7	9666	0.990	2.00	10.9	106	40
Poor	1524	51.60	0.88	8.5	6257	0.885	1.71	10.5	94	48
					Boys					
Recommended allowance	3800	100.00	1.40	15.0	5000	1.900	2.50	19.0	100	400
Tinsley										
Good	2857	102.00	2.90	14.3	6935	1.570	2.43	15.0	176	56
Fair	2370	91.30	1.18	14.3	5355	1.150	1.94	14.0	71	40
Poor	2177	77.50	1.03	13.8	6992	1.800	1.80	14.5	112	49

Written Tests on Menu Planning

Pre- and post-test scores were converted to standard scores. When the pre-test score of each member of the co-educational foods group was listed and compared with his or her post-test score, a mean gain of 1.22 resulted.

Check Sheet on Food Habits

The check sheet on food habits revealed that a higher percentage of boys than girls ate breakfast. No significant improvement in the breakfast habit was evidenced in the May records. Persons eating no breakfast or eating a meager one for three or more days a week were inferior to the group as a whole in meeting their dietary recommendations.

Drinking milk three times a day was a greater problem for the girls than for the boys. Even at the end of the study, only one-fourth of the girls drank recommended quantities of milk.

Few students ate a morning snack, but more than half of the foods students reported an afternoon snack both in January and in May. Fruit, milk, and ice cream were the snacks eaten most frequently. Almost everyone in the control group ate afternoon snacks. Fruit, milk, and sandwiches were their most popular choices.

Summary

A study of the eating habits of students in co-educational foods classes and a control group revealed that students in the foods classes improved in their understanding of what a day's meals should include and in their food practices. Greater progress was made by students who analyzed their own records than by those whose records were analyzed by the teacher; however, a larger group would need to be studied to learn whether this difference would have statistical significance. A simplified method of scoring developed by Tinsley differentiated between poor and good ratings for most nutrients when compared with the 1953 recommended allowances.

Reference

(1) TINSLEY, W. F.: Development of Instruments for Evaluating Food Practices, Nutrition Information, and School Lunch Programs and Their Use in Nutrition Education at the Elementary Level. Unpublished Ph.D. thesis, University of Minnesota, 1947.

Nutritive Value of the Noon Meal of Nursery School Children[1]

J. ANTHONY SAMENFINK, Ph.D.,
CECILIA SCHUCK, Ph.D.,
and JEAN TRAVIS OPHEIM

South Dakota State College of Agriculture and Mechanic Arts Brookings

THE NUMBER of young women continuing with professional preparation in dietetics and nutrition beyond the baccalaureate degree has been diminishing in recent years until now hospitals, colleges, universities, and research laboratories face the dilemma of a dwindling supply of women with advanced training in these fields. Problems involving group feeding and simple research techniques may be valuable as a means of interesting promising senior students in further study and professional training. Regardless of whether this is the outcome, such problems interest and stimulate the inquiring mind and have true educational value.

The study described here was the result of the interest of the junior author[2] in the feeding of

[1]Received for publication June 19, 1958.

[2]J. T.

Hot Ralston (Instant or Regular) perks up the palates of patients on sodium-restricted diets because it doesn't depend on salt for flavor. It's just naturally full of the flavor of whole-grain wheat — much heartier than most low-sodium foods. Ralston's added wheat germ provides high quality protein, too, as well as appetite-building B vitamins. Instant Ralston cooks in just 10 seconds; Regular Ralston in 5 minutes.

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Typical menus served during the five-week study

Menu 1

Roast beef
Mashed potatoes Buttered, frozen mixed vegetables
Lettuce Apple slices
Bread and butter
Tapioca pudding
Milk

Menu 2

Liver loaf
Carrot sticks Pear slices
Peanut butter sandwiches
Soft custard with banana
Milk

Menu 3

Meat loaf
Orange and pear salad
Apple slices Lettuce
Bread and butter
Chocolate pudding
Milk

Menu 4

Scrambled eggs and bacon
Cooked cabbage with cheese sauce
Peanut butter sandwiches
Fruit cup (banana and orange)
Milk

Menu 5

Roast pork
Mashed potatoes Buttered peas
Celery sticks Apple wedges
Bread and butter
Baked custard
Milk

children to meet nutritional needs. She was at that time a senior in the Division of Home Economics at South Dakota State College with a major in foods and nutrition. The purpose of the study was to learn if the children in the nursery school were eating sufficient quantities of the essential foods at the noon meal to meet at least one-third of their daily recommended allowances for calories and nutrients.

The sixteen children enrolled in the nursery school of South Dakota State College for the spring quarter of 1957 served as subjects. At the beginning there were six children in the three-year-old group, seven in the four-year-old group, and three in the five-year-old group. During the course of the study two of the four-year-olds reached the age of five, but in the evaluation of the data on food consumption they were considered in their original age group.

The children were seated at five tables with three or four belonging to the same age group at each table. Weighed amounts of the foods were placed on the table and the children helped themselves. The teachers were served plate-style from the kitchen. The "self-service" method used in the nursery school has been observed to influence favorably the food and nutrient intake of children (1, 2,). After the children had eaten, the plate scraps and leftover foods were weighed to determine the amounts consumed. This was recorded by age groups, and the average amount per person for each group was calculated. Calories and nutrients were calculated from standard food tables. Values for mixed dishes were figured from the individual ingredients of the recipes and from the relation of amounts consumed to the total weight of the finished products. The data were collected every Monday and Wednesday for five weeks.

Nutrient Intake

Five of the menus used are indicated in the accompanying box. In addition to the foods eaten at the noon meal, the children were served 60 gm. orange juice in mid-morning. The caloric and nutrient intakes are summarized in Table 1. The values for orange juice are included.

Mean calories and nutrient intakes in most instances increased from the youngest to the oldest group. In an earlier nursery school study in which calories were measured in an oxycalorimeter and protein figures were obtained from the Kjeldahl analysis for nitrogen (3), six four- to five-year-old children studied for two five-day periods had a mean daily caloric intake of 405 and a mean protein intake of 16 gm. as compared with 518 calories and 19 gm. protein in this study. In another study (2) in which procedures were similar to those of the present study, the mean daily caloric intake of seven children three to four years of age, studied for a period of ten to twelve days, was 413 and the mean daily protein intake 17 gm. For the three-year-old group of this study, calories were approximately the same as in the latter study and protein somewhat lower.

A comparison with the recommended allowances of the National Research Council (4) showed that the mean food intakes of the three-year-old children at the noon meal provided one-third or more of the recommended calories and nutrients except for

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TABLE 1 **Mean caloric and nutrient intake per child per day as compared with recommendations**

FACTOR OF COMPARISON	CALORIES	PROTEIN	CALCIUM	IRON	VITAMIN A	THIAMINE	RIBO-FLAVIN	NIACIN	ASCORBIC ACID
				Three-Year-Old Children					
		gm.	*mg.*	*mg.*	*I.U.*	*mg.*	*mg.*	*mg.*	*mg.*
Intake	402	15	295	2	1895	0.25	0.51	2	41
Recommendation	1200	40	1000	7	2000	0.60	0.90	6	35
% recommendation	33.5	37.4	29.5	28.5	94.7	41.6	56.6	33.3	117.1
				Four-Year-Old Children					
Intake	518	19	351	3	3041	0.33	0.64	3	42
Recommendation	1400	45	1000	8	2300	0.70	1.10	7	45
% recommendation	37.0	42.0	35.1	37.5	132.2	47.1	58.1	42.8	93.3
				Five-Year-Old Children					
Intake	544	21	362	3	2206	0.33	0.67	3	42
Recommendation	1600	50	1000	8	2500	0.80	1.20	8	50
% recommendation	34.0	42.0	36.2	37.5	88.2	41.2	55.8	37.5	84.0

calcium and iron, which fell between one-fourth and one-third of the recommendations. For the two older groups, one-third of the daily recommended amount of iron was obtained and over one-third of the calories and all of the other nutrients. Mean intakes of vitamin A and ascorbic acid were high for all three age groups. For the five-year-olds, vitamin A was 88 per cent of the recommended daily amount; for the four-year-old group, 132 per cent; and for the three-year-olds, 95 per cent. Ascorbic acid was 84, 93, and 117 per cent for the three age groups respectively. The percentages of the daily recommended allowances for calories and for most nutrients consumed at the mid-day meal were smaller for the youngest group than for the two older groups. One might question whether foods consumed by the three-year-olds at the two other meals would provide enough calcium and iron to bring the amounts up to the daily recommended allowances, considering the low intake at noon.

Summary

A study of the caloric and nutrient intake at the noon meal of sixteen nursery school children, ages three to five years, has been reported. Information was obtained from calculated values for weighed diets twice weekly for five weeks. The mean intakes for calories and all nutrients, except for calcium and iron, equaled or exceeded one-third of the daily recommended allowances. The three-year-old children failed to attain this level for calcium and iron. With a consumption of less than one-third of the recommended amounts at noon, it seems unlikely that the other meals can be depended on to bring these nutrients up to the daily recommendations. Since the mid-day meal for this age is often the principal one of the day, it is important that the kinds and amounts of foods eaten at this meal provide liberal quantities of all nutrients.

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(3) LODDE, R., SAURER, M., AND SCHUCK, C.: Abstract—Current research in nutrition. J. Home Econ. 33: 599, 1941.

(4) FOOD AND NUTRITION BD.: Recommended Dietary Allowances, Revised 1953. Natl. Acad. Sci.—Natl. Research Council Pub. No. 302, 1953.

Fats Used as Drugs

Recently, several pharmaceutical manufacturers have produced products purporting to contain large amounts of polyunsaturated fatty acids with the implication that they, in some measure, will prevent or modify atherosclerosis.

"There are two methods for overcoming the overzealous activity of these pharmaceutical houses. First, continued education of physicians and medical students in methods of evaluating new pharmaceuticals and in sources of factual information about them is essential. For attractiveness, the quiet black-and-white pages of scientific and professional journals are a poor second to the color-and-design display of advertisers. Yet, perhaps the satisfying feeling of studying a subject and of correlating data oneself is worth the trouble. Second, pharmaceutical manufacturers should be encouraged to reevaluate their advertising literature dealing with the promotion of materials for the treatment of diseases of possible nutritional origin to insure its accuracy and avoid unnecessary misinterpretation."

—Abstracted from "Fats Used as Drugs." Statement of the Council on Foods and Nutrition. J.A.M.A. 167: 863 (June 14), 1958.

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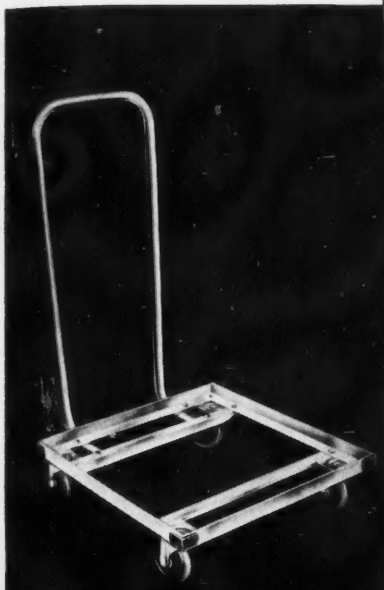

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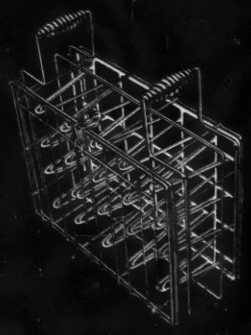

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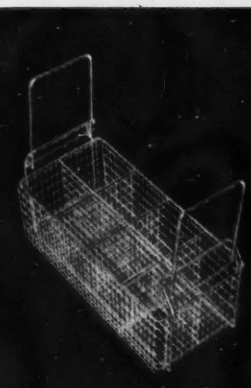

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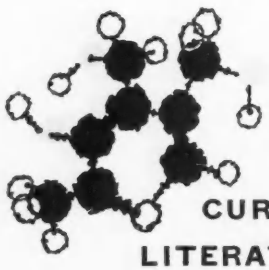

CURRENT LITERATURE

Contributed by Janette C. Carlsen, The Johns Hopkins Hospital, Baltimore; Clara Karl, University of Chicago Clinics; and the Journal staff.

THE AMERICAN JOURNAL OF MEDICINE

Vol. 24, June, 1958

*The changes in concentration of cholesterol in the serum of hypertensive patients during antihypertensive therapy. Q. B. Deming, M. E. Hodes, A. Baltazar, J. G. Edreira, and S. Torosdag.—p. 882.

Vol. 25, August, 1958

*Sociologic, psychologic and metabolic observations on patients in the community of a metabolic ward. W. W. Schottstaedt, R. H. Pinsky, D. Mackler, and S. Wolf.—p. 248.

Antihypertensive Therapy and Serum Cholesterol. The concentrations of total serum cholesterol of hypertensive patients have been reported to decrease during the administration of the Kempner rice diet, hydralazine, or pentolinium. The data presented concerning the changes in serum cholesterol concentration and in blood pressure occurring in twenty-one controlled, hospitalized hypertensive patients during treatment with reserpine, hydralazine, reserpine plus hydralazine, chlorisondamine, or mecamylamine confirm reports that serum cholesterol decreases during therapy with hydralazine or with ganglionic blockade. They do not demonstrate a similar decrease during administration of reserpine.

Sociologic Aspects of a Metabolic Ward. In this study of sociologic, psychologic, and metabolic observations of a metabolic ward, it soon became evident that the metabolic ward had the special characteristics of a well defined community with its own pressures, values, prestige points, and taboos. The "ground rules" of behavior seemed to reflect the personality of the head nurse more than any other one specific factor. Major metabolic changes in terms of urinary excretion of water, sodium, potassium, calcium, nitrogen, and creatinine occurred repeatedly in situations of stress among patients. When the general atmosphere of the ward was disturbed, 86 per cent of the presumed stressful events were accompanied by significant alterations in the balance data, while during relatively calm periods for the group as a whole only 48 per cent of presumably stressful episodes were accompanied by significant changes. It could not be said that one patient was more reactive than another. Interpersonal difficulties were the most common stresses associated with metabolic deviations. This pilot study indicates that the metabolic ward is not necessarily a neutral environment.

BRITISH MEDICAL JOURNAL

No. 5089, July 19, 1958

*A comparative study of the use of ferric chelate in iron-deficiency anaemia. C. F. Herridge.—p. 140.

*Unsaturated fats in treating of coronary disease.—p. 148.

Treating Iron-Deficiency Anemia. Thirty children and young adults with iron deficiency were treated with elixirs of ferric chelate, ferrous gluconate, and ferrous succinate. Those receiving the ferric chelate showed a significantly greater response in hemoglobin rise compared with the other two groups, but this was probably due to the larger amount of utilizable iron given. Diarrhea was more prominent and there was some lowering of the prothrombin activity in half of this group, though not of sufficient degree to be of clinical importance. The dose of ferric chelate could probably be reduced below that given in this trial and still give an adequate hematologic response but with less likelihood of side-effects.

Unsaturated Fats in Coronary Disease. At present there is no evidence in man either that reduction of the serum cholesterol causes regression of atherosclerosis or that the prognosis of hypercholesterolemic patients with coronary disease is improved by reducing their high circulating cholesterol. Nevertheless, it is probably justifiable to act on an unproved hypothesis and substitute corn oil for animal fats in hypercholesterolemic patients with a family history of coronary disease. In contrast to this experimental approach, much more basic information is required before the public can be advised either to eat less saturated fats or more unsaturated fats. Even so, there are already several types of milk, cheese, and margarine containing unsaturated oils available in retail stores in England. Some industrial firms, believing that these preparations will be commercially profitable, have launched publicity campaigns. Many people would hold, however, that some of the claims made for these foods, which can cause dyspepsia and diarrhea and may be expensive, are unsubstantial and premature. Because understanding of coronary artery disease is still in the experimental phase, no specific dietary recommendations, apart from reduction of obesity, can reasonably be made.

CHRONICLE OF THE WORLD HEALTH ORGANIZATION

Vol. 12, June, 1958

*Endemic goitre: a public health anachronism.—p. 179.

*Diarrhoeal disease with special reference to the Americas.—p. 193.

Endemic Goiter. Although endemic goiter is not a killer disease, it is responsible, even in its milder forms, for much human misery and is a public health problem. In the hope of stimulating interest in prophylactic measures and of assisting governments in investigating the position in their countries, WHO organized a Study Group on Endemic Goiter in 1952. In this article a review of what is known at present about the prevalence, etiology, and control of the disease is presented. The ease with which the problem could be banished by the universal introduction of mass prophylaxis is stressed. Because salt is a convenient vehicle for administering iodine supplements and because the quantities of iodine required are so minute, the solution is a relatively inexpensive one.

Diarrheal Disease. In several countries of the Americas, diarrheal disease is the principal cause of death, and in almost all of them it is one of the most important causes of morbidity and mortality in infancy and early childhood. This is a special concern of the Pan American Sanitary Bureau, the WHO Regional Office for the Americas. Some of the more common infectious agents responsible for diarrheal disease are discussed, giving their incidence in various countries. Methods of attacking these organisms and their mode of transmission are presented.

FOOD AND NUTRITION NOTES AND REVIEWS

Vol. 15, May and June, 1958

*Diet and dental decay. P. B. Green.—p. 37.

*Flavonoids in human nutrition. R. M. P.—p. 45.

Diet and Dental Decay. Dental decay is the most widespread of all diseases among civilized people and increases with the standard of living of a nation. It attacks over 99 per cent of Australians. Chemical control of the breakdown of sugar to acid has been investigated, and it is still hoped that an enzyme inhibitor will be discovered which will control decay in the mouth by the inhibition of the enzymes needed to change sugar to lactic acid. Control of decay by diet is the best means of control. Reducing the number of times sugar is eaten is more important than the amount eaten. Sugar intakes should be at only two meals a day, after which the teeth should be cleaned.

Flavonoids and Nutrition. The flavonoids are carbon-hydrogen-oxygen compounds widely distributed in nature. The most important commercial source is citrus fruit rind. In recent years there has been an upsurge of interest in the flavonoids, or in the vitamin P group, as they were originally named. The high hopes once held for the flavonoids as important metabolites have not materialized. Their effect in the course of the common cold or in capillary fragility and permeability has not been significant.

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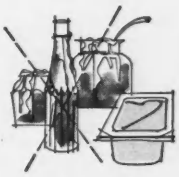

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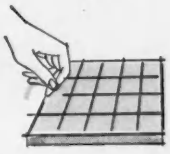

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While the flavonoids possess mild pharmacologic properties under certain conditions, they have no known nutritional functions. They cannot be regarded as essential nutrients, and it appears that all claims for a vitamin function on the part of the flavonoids have been based on inadequate evidence.

FOOD TECHNOLOGY

Vol. 12, August, 1958

*Some effects of sweeteners on frozen fruits used for preserve manufacture. A. H. Bockian and M. Aref.—p. 393.

*Dehydrated cooked meat products. R. M. Ballantyne, C. Brynko, A. J. Ducker, and W. R. Smithies.—p. 398.

*Dehydrocanned apples. M. J. Powers, W. F. Talburt, R. Jackson, and M. E. Lazar. —p. 417.

*Effect of packaging materials and techniques on shelf life of fresh poultry meat. F. E. Wells, J. V. Spencer, and W. J. Stadelman.—p. 425.

Effect of Different Sweeteners. Effects of different sweeteners and fruit: sugar ratios on quality of Marshall strawberries, Montmorency cherries, and Elberta peaches frozen for subsequent manufacture into preserves were investigated. Results show that ratios affect drained weights, that certain treatments affect the flavor and color of some thawed fruits and their preserves, and that there is no clear-cut evidence for the superiority of any sugar in these respects. A large student taste panel failed to confirm previous indications by a small panel that Marshall strawberries capped with sucrose and frozen for six months yielded better flavored preserves. Fruit packed without sugar and frozen for periods up to eight months and then processed into preserves had a color and flavor equal to those of preserves made from sweetened packs.

Freeze-Drying Cooked Meat. Typical cooked meat items can be freeze-dried in about 4 hr. using spiked heater plates to insure efficient heat transfer during the dehydration process. Pressure cooked meats rehydrate rapidly but products cooked by dry heat rehydrate with more difficulty when fat and connective tissue are present. Hot-air dried cooked ground beef is an acceptable item and rehydrates quickly. There appears to be little or no advantage in freeze-drying this type of product.

Dehydrocanning Apples. A method has been developed for preparing canned, double-strength, apple pie stock. It involves dipping fresh slices in salt and citric acid, drying rapidly to about double strength; blanching to inactivate enzymes and to preheat for canning; fitting tightly into cans; sealing hot; cooking; and cooling. Storage stability is good through one year at 70°F. but browning occurred on storage at 90°F. The chief advantages are economies in packaging, transportation, and storage.

Packaging Fresh Poultry Meat. A study was made of the effect of various packaging materials and techniques on the shelf life of fresh poultry meat. Parts of this study involved meat treated with 30 p.p.m. of both chlortetracycline and oxytetracycline. A third part involved untreated meat. Cellophane sheets, polyvinylidine bags, and polyvinylidine sheets were used as the protective coverings. Data are presented to show the effect of the type of covering and the influence of antibiotic treatment (with and without evacuation of air) on storage time. Differences in shelf life relative to packaging techniques were observed. Partial evacuation of the containers accounted for increases in "shelf life," regardless of the treatment the meat received prior to packaging.

JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY

Vol. 6, August, 1958

*Demeton residues in collards, lettuce, and mustard. C. H. Van Middelem and R. E. Waites.—p. 594.

Demeton Residues. Because normal weathering processes are not entirely effective in lowering toxic residues of certain systemics, considerable investigation is needed to determine the quantities of this class of insecticide that persist on or in a raw agricultural commodity being prepared for interstate commerce. As the compound demeton (systox) was the first systemic insecticide cleared for commercial use on vegetables, it was chosen for this study. The usually recommended twenty-one-day waiting period following the last application of demeton was found to be inadequate when three or four foliar applications were applied once per week. The tolerance of 0.75 p.p.m can be met on such leafy vegetables as lettuce, collards, and mustard if foliar applications, using recommended dosages, are spaced two to three weeks apart and a twenty-one-day waiting period after the last application is allowed before harvest.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 167, August 16, 1958

*Weight reduction. Correspondence.—p. 2029.

*Emulsifying agents and weight gain. Questions and Answers.—p. 2040.

Vol. 167, August 23, 1958

*Food faddism. Organization Section.—p. 2088.

*Galactosemia. Foreign Letters–Switzerland.—p. 2108.

*Diet and arterial disease. Foreign Letters–United Kingdom.—p. 2112.

*Diets in pregnancy. Foreign Letters–United Kingdom.—p. 2113.

*Gastrectomy and loss of weight. Foreign Letters–United Kingdom.—p. 2115.

*Safe milk abroad. Questions and Answers.—p. 2157.

*Bacteria count of yogurt. Questions and Answers.—p. 2160.

*Linoleic acid content of nuts. Questions and Answers.—p. 2161.

*Cooking fatty acids. Questions and Answers. —p. 2162.

Vol. 167, August 30, 1958

*Simple method for detection of phenylketonuria. H. K. Berry, B. Sutherland, G. M. Guest, and J. Warkany.—p. 2189.

*Effect of diet on serum cholesterol. Foreign Letters–India.—p. 2234.

*Effect of fats on coagulation. Foreign Letters–India.—p. 2235.

*Urinary excretion of water-soluble vitamins. Questions and Answers.—p. 2258.

Vol. 168, September 6, 1958

*Nutritional management of children with diabetes mellitus. Council on Foods and Nutrition. R. L. Jackson.—p. 42.

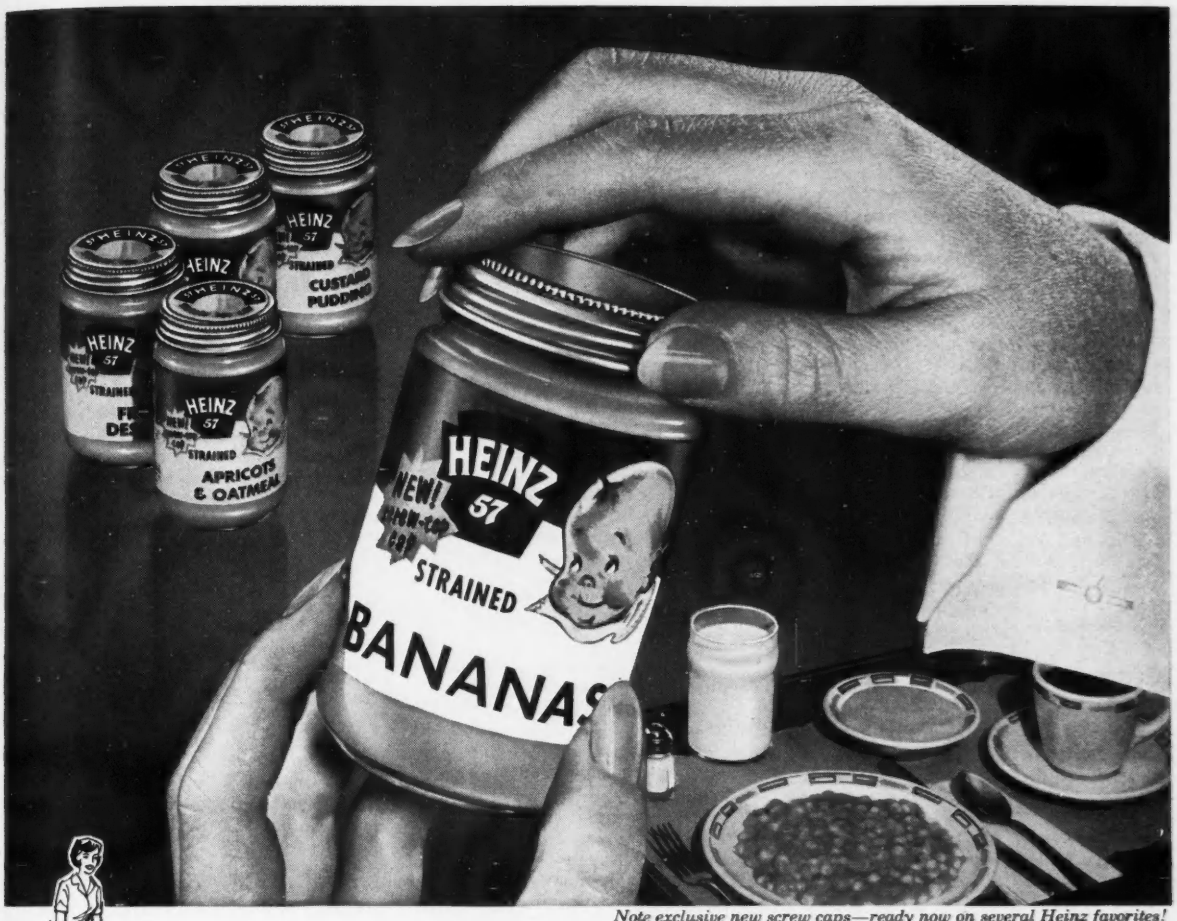
*Causes of overweight. Foreign Letters–United Kingdom.—p. 96.

*Salmonella carrier, Questions and Answers. —p. 135.

Weight Reduction. This author is criticizing the low-calorie, low-protein formula diet used for weight reduction at the Rockefeller Institute. He states that no studies of nitrogen balance were made and that other investigators have shown that a decided negative nitrogen balance exists in obese individuals following such diets. While fat can be stored in an almost pure state in the body, protein cannot be stored dry but retains with it three or more parts of water. In clinical weight reduction, when the patient is in nitrogen equilibrium, the caloric deficit is made up by the catabolism of fat. The caloric equivalent of 1 lb. body weight lost is about 3500 calories. When a nitrogen deficit is present, considerable losses of water occur, and the caloric equivalent of 1 lb. body weight lost is decidedly less than 3500 calories. The weight loss is spurious because it has no permanency. After the desired weight loss has occurred and the patient is eating a diet adequate to maintain caloric equilibrium, the protein stores depleted during the period of negative nitrogen balance will be replenished. For every pound of protein replenished, 3 lb. water will be retained, making a 4 lb. increase in body weight.

Emulsifying Agents and Weight Gain. In regard to a patient with a dumping syndrome, it is unlikely that defective handling of fat accounts for the postprandial weakness, diarrhea, and other features commonly observed in this condition. Administration of emulsifying agents or of pancreatic extract would not be expected to effect improvement of these symptoms. So far as loss of weight is concerned, it seems clear that excretion of an abnormal quantity of fat in the feces might contribute to this symptom. If the patient can be encouraged to take an extra 500 calories of food each day and to avoid the use of fluids at meals, nutrition may be improved by these measures alone.

Food Faddism. Four departments of the American Medical Association, in cooperation with the Bureau of Investigation and the National Better Business Bureau, have joined in a program to alert the public to notorious health lecturers, worthless or harmful tonics and food supplements, phony health foods, and related false advertising claims. One project is an exhibit entitled "Nutrition Nonsense and False Claims," which features an actual recording of the "pitch" made by a door-to-door salesman of food supplements. A film entitled "The Medicine Man," dealing with the



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Galactosemia. At a symposium on carbohydrate metabolism, it was stated that the lack of uridyltransferase and disturbed galactose metabolism in patients with galactosemia do not explain the varying severity of the clinical manifestations of this disease. Efforts have been made to explain this by saying that the uridyltransferase was only partially lacking, or that there are other metabolic pathways for galactose. To this can be added the functional maturity of organic systems that are usually directly or indirectly injured by the accumulation of the metabolite which is the phosphoric-l-galactose ester. Case studies have shown that as long as a child with galactosemia is growing, it is essential for him to follow a diet without galactose.

Diet and Arterial Disease. Attention has been focused more on an excess of fat in the diet than on an excess of food as a factor in the cause of atheromatous arterial disease. A study was made of the food eaten by men and women with atheromatous disease and by control subjects. Body measurements showed the atheromatous subjects to be a little shorter and heavier, and there was a slight tendency for caloric intake to increase with body weight. The atheromatous men were bigger "all-round" eaters than the male controls, whereas the atheromatous women were bigger eaters of fat only. The intake of fat of the atheromatous group as a whole was 28 per cent greater than that of the normal group. The atheromatous men ate an absolute excess of all fractions of the fatty acids, as compared with the male controls, but they consumed a rather higher proportion of their fat in a saturated form. There was no evidence that a deficiency of unsaturated fatty acids was an important etiologic factor.

Diets in Pregnancy. A dietitian in a maternity pavilion in Edinburgh states that there has been a noticeable deterioration in the diets of many women, particularly in pregnancy. The deterioration is attributed chiefly to the increased cost of living and to a rise in unemployment. In some families, although the income would appear adequate, credit commitments resulted in less being spent on food. Foods rich in protein were reduced in favor of the cheaper carbohydrate foods. A woman might start her pregnancy in good health, but her condition often deteriorated toward the end, as she often became anemic on an inadequate diet.

Gastrectomy and Weight Loss. In patients who had undergone gastrectomy of various types, those who had lost weight before operation tended to regain it afterward, and those who had maintained their weight and the few who had gained up to the time of operation tended to lose it afterward. In patients who had lost 14 lb. or more since partial gastrectomy for peptic ulcer, significant gains in weight were found in those who had dietary supervision, methyltestosterone, or iproniazid. Dietary supervision increased the weight in every case, but the results with methyltestosterone and iproniazid were less consistent.

Safe Milk Abroad. Nearly everyone in Europe, even in countries where pasteurization is practiced, boils milk before drinking it. Many animal diseases transmissible to man, such as bovine tuberculosis, brucellosis, and streptococcic infections, are spread by milk. Milk may also be contaminated with any of the enteric types of bacteria. A traveler abroad would be well advised to drink only boiled milk.

Bacteria in Yogurt. Because yogurt is made in many ways, a precise estimate of the bacterial count is not possible except for individual batches or for the commercially prepared product which has been made under standardized conditions. When the milk is first inoculated, the bacterial count is low but increases rapidly to a peak, after which it tends to recede with changes in *p*H associated with the fermentation process. Thus, in commercially prepared yogurt the count tends to reach a high point, in the neighborhood of 500 million per cubic centimeter. This is followed by a diminution to about 200 million.

Linoleic Acid in Nuts. Figures for linolenic acid content of nuts are not available. Figures are given for the linoleic acid in such common edible nuts as almonds, peanuts, pistachio nuts, and English walnuts.

Cooking Fatty Acids. Heat used in cooking apparently does not alter the degree of unsaturation of fatty acids in the commonly used cooking oils. The temperature at which polymerization occurs is at a higher level than that to which food fats ordinarily are subjected. Generally, polymerization will occur only when these high temperatures are maintained for periods of 8 to 12 hr.

Detection of Phenylketonuria. Phenylketonuria is a disease characterized by the inability to metabolize phenylalanine, which is present in all proteins in average concentration of 4 per cent. Phenylalanine, phenylpyruvic acid, ortho-hydroxyphenylacetic acid, and other unusual metabolites are excreted in the urine. These investigators from Cincinnati have devised a simple method for collection of urine on filter paper which can then be tested for the presence of phenylpyruvic acid. Mothers of newborn infants are given several pieces of absorbent paper and instructions to test the urine, dry the paper, and mail in for testing. The test should be performed at four to six weeks of age, since phenylpyruvic acid may not be present in urine of infants with phenylketonuria until two to three weeks after birth. Since it is important to detect phenylketonuria in early infancy, this simple method of testing by the mother seems desirable. Details of testing the dried urine on filter paper are given.

Diet and Serum Cholesterol. These authors studied the effects of ingestion of high levels of different types of fat on serum cholesterol in human beings and monkeys. The effects of caloric and protein restriction on serum cholesterol were also studied in monkeys. The effect of fat intake on the level of serum cholesterol varied with different types of fat. This difference may be due to different factors, such as differences in sitosterol content, in the essential fatty acid content, and in the content of total unsaturated fatty acids. In the monkeys fed butter or hydrogenated vegetable fat, there was no progressive increase in serum cholesterol, and the sharp rise in its level at first was not sustained. This indicates the ability of the organism to adapt itself to some extent to high-fat intake. Diet deficient in proteins and/or calories caused reduction in serum cholesterol. Protein deficiency alone, in the absence of caloric deficiency, reduced serum cholesterol, but the protein deficiency induced was severe.

Fats and Coagulation. Investigators stated that the development of coronary disease may depend on other factors than atherosclerosis, such as those influencing blood coagulation. They studied the effects of different lipids on whole blood clotting time and prothrombin time in human subjects. Results are given. The different results obtained with different fats with regard to their effect on whole blood clotting time cannot be explained satisfactorily, but they are not due to differences with regard to the degree of saturation or the chain length of their component fatty acids.

Excretion of Vitamins. For a person weighing 70 kg. (156 lb.), the average levels in the urine of riboflavin, thiamine, pyridoxine, and vitamin B_{12} would be 1 mg., 0.2 mg., 0.3 mg., and 0.03 mcg. per day, respectively. These values compare with the allowances of 1.6 mg., 1.6 mg., about 2 mg., and about 4 mcg. respectively. All of the water-soluble vitamins are excreted to some extent in the urine.

Nutritional Management of Diabetic Children. This is an excellent article on the role of diet in the management of the diabetic child. Topics discussed are diet for growth and maintenance, diet and physical activity, diet and infection, dietary instruction, and diet and insulin. The author explains the planning of a nutritionally adequate diet for the diabetic child. A chart is presented of the mean caloric intake per pound of body weight for children one to eighteen years of age. Another chart gives the percentage distributions of insulin and diet. Concerning physical activity, it is important to keep the insulin dosage as constant as possible and to make additions or subtractions of food with variations of exercise. The basal diet should be reduced during infections,

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depending on the severity of the infection, the degree of anorexia, and the amount of curtailment of physical activity. It is stressed that dietary instruction should be simple and straightforward and vary according to the ability of the parents and the child to learn.

Causes of Overweight. This author, Sinclair of Oxford University, is condemning several aspects of nutrition and modern life rather than citing causes of overweight. He feels that cardiac and other diseases may be due to a deficiency of the essential fatty acids. Giving children unlimited food, especially milk, produces early maturity, a certain amount of obesity, and chronic degenerative diseases later. He states that cow's milk and butter supply the wrong fat and that the national "drink more milk" campaign is pernicious. The present age is associated with lack of physical exercise and improper nutrition.

Salmonella Carrier. The failure of a patient to respond to treatment with chloramphenicol but still having a positive stool report of Salmonella is evidence that the organism is either resistant to the antibiotic in the dosage given or may be in the gallbladder or bile ducts and hence inaccessible to the drug. Since there is no assurance that other antibiotics would cure the carrier condition and since the patient is not a food handler, this consultant would recommend no further treatment. In many cases the carrier condition clears in time, and stool cultures should be taken at six-month intervals to see whether the carrier state persists.

THE JOURNAL OF AVIATION MEDICINE

Vol. 29, July, 1958

*A closed food cycle atomic conservation for space flight. C. C. Clark.—p. 535.

Food Cycle for Space Flight. A synthetic diet has been proposed for extended space flights. Experiments to demonstrate the adequacy of this diet and to develop the automatic equipment for synthesis, fractionations, inclusive small molecule biochemical analysis, and diet selection should commence soon. At present, sustenance is taken into the body and the wastes are thrown out, with little individual control of the many steps by which the waste atoms may eventually become the sustenance of another being. In a space craft, this cannot be the case. Any atom thrown out cannot be replaced, and the occupants must eventually have the capability, by the expenditure of energy, of converting waste molecules into those required for sustenance. The space crew must eventually have the capability of regulating a closed food cycle, with atomic conservation, and the repeated passage of the same atoms through their bodies. This task of developing an adequate closed food cycle is the most difficult and, hence, the most significant task that must be completed before man can begin extended space voyages.

JOURNAL OF BIOLOGICAL CHEMISTRY

Vol. 232, June, 1958

*The alkaline phosphatase content of human milk. R. A. Stewart, E. Platou, and V. J. Kelly.—p. 777.

Phosphatase of Human Milk. A method of measuring alkaline phosphatase activity of human milk is described. Analyses of 199 samples of human milk gave an average alkaline phosphatase level of 147 units per milliliter with a range from 30 to 540 units. There was some tendency for high phosphatase levels to be associated with a high fat content of milk. Otherwise, there appeared to be no relationship of phosphatase values to the other constituents examined. Other than a possible tendency for alkaline phosphatase concentration to increase as lactation progressed, no relationship was found between the level of the enzyme and such characteristics of the donor as age, nationality, or the number of children.

THE JOURNAL OF CLINICAL INVESTIGATION

Vol. 37, July, 1958

*Blood ammonia levels following the ingestion of casein and whole blood. A. N. Bessman and G. S. Mirick.—p. 990.

*Pulmonary function in obese persons. G. N. Bedell, W. R. Wilson, and P. M. Seebohm. —p. 1049.

Blood Ammonia in Liver Disease. Blood and a casein-milk solids preparation (Protenum) were administered intragastrically to control patients and to patients with liver disease. Each patient received both test substances; for a given patient, the total nitrogen content of the two test substances was the same. None of the control subjects showed significant elevations in either blood ammonia or the non-protein nitrogen (NPN) over a period of 3 to 5 hr. All seven of the patients with liver disease showed a significant rise in blood ammonia and NPN following administration of blood; six showed a significant rise in these determinations following the administration of Protenum. Several patients developed central nervous system symptoms while the blood ammonia was elevated. The arteriovenous difference of ammonia increased in six of the seven patients with liver disease as the arterial levels increased. The practical significance of these findings in relation to the treatment of gastrointestinal hemorrhage is discussed.

Pulmonary Function in Obese Persons. Twenty-eight persons who weighed at least 100 lb. more than their ideal weight were studied. Of this group, thirteen had normal arterial oxygen saturation. Fifteen had hypoxemia, ten of whom had alveolar hypoventilation as manifested by increased arterial P_{CO_2}. Alveolar hypoventilation was associated with myxedema or lung disease. Obese persons who had normal arterial oxygen saturation had reduced expiratory reserve volumes, reduced maximal breathing capacities, and reduced maximal flow rates. When these patients lost weight, their lung function returned toward normal. Some obese persons who did not have lung disease did have arterial hypoxemia without hypercapnia. It is believed this is caused by a disturbance in ventilation perfusion ratios in the lungs. However, when alveolar hypoventilation is present (arterial hypoxemia and hypercapnia), one should suspect intrinsic lung disease, a disturbance of the respiratory musculature, or a central nervous system lesion. In our experience obese persons with normal lungs, normal respiratory muscles, and an apparently normal respiratory center did not have alveolar hypoventilation. Most obese persons with pulmonary insufficiency are benefited by weight loss. Presumably the improvement is caused by reduction in the work of breathing. Obese persons with lung disease need therapy directed toward correcting or alleviating the basic lung disease.

JOURNAL OF THE NEW ZEALAND DIETETIC ASSOCIATION INCORPORATED

Vol. 12, June, 1958

*Problems in expressing land—food—people equations. K. F. O'Connor.—p. 7.

Land—Food—People. In this paper the form of equations of land, food, and people are shown, some of the real problems which the application of such techniques involve are examined, and some logical methods of attacking these problems are presented. This author does not believe that the world or any region of it is going to be overpopulated by such and such a date. He feels that commercial systems of land use have not made a very satisfactory job of distribution of the fruits of the earth to the people of the earth. However, through intensified and extended research of the interrelationships of these three branches, and possibly through governmental control, it is hoped that many problems can be alleviated.

THE JOURNAL OF NUTRITION

Vol. 65, June, 1958

*Effects of the esterification of supplemental cholesterol and sitosterol in the diet. M. M. Best and C. H. Duncan.—p. 169.

*Effects of semistarvation on the distribution of erythrocytes and plasma in organs and tissues of the rat. E. P. Lasher, B. S. Simmons, and N. B. Everett.—p. 317.

Esters of Cholesterol and Sitosterol. The first part of this study reports the effect of prior esterification of dietary cholesterol on its accumulation in serum and liver of the rat. The results suggest that cholesterol esters are not absorbed as such, but are first hydrolyzed in the intestinal lumen to the free sterol. The increment in liver cholesterol was almost entirely in the ester fraction, without regard to whether the cholesterol added to the

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diet was free or esterified. The second part of the study relates to the inhibitory effect of beta-sitosterol on cholesterol absorption. The results suggest that sitosterol esters also undergo hydrolysis in the intestine and that any inhibitory effect they exert on cholesterol absorption is due to the resultant free sitosterol.

Blood Values of Semi-Starved Rats. Organ and tissue blood volumes were studied in rats under conditions of semi-starvation on diets of equal caloric value containing either adequate amounts of protein or four times that amount. It was found that, after an experimental period of two weeks, the total blood volume of the rats per unit of weight changed very little. However, the amounts of blood in certain organs and tissues differed significantly from those in normal rats. Results are given.

THE JOURNAL OF PEDIATRICS

Vol. 53, July, 1958

*Iron as a therapeutic agent in pediatric practice. N. J. Smith.—p. 37.

*The treatment of the epileptic child. J. G. Hughes and J. T. Jabbour.—p. 66.

*Medical progress. Obesity. R. S. Illingsworth. —p. 117.

Vol. 53, August, 1958

*The treatment of anorexia. E. P. MacKenzie. —p. 187.

Iron as a Therapeutic Agent. Iron salts have a well established role in preventing and treating iron deficiency states. Iron should be administered as a simple iron salt, in divided doses, and for adequate periods of time. Adjuncts, such as cobalt, folic acid, molybdenum, copper, and ascorbic acid, are of no practical value in the treatment of iron deficiency. In rare instances in which chronic gastrointestinal disease prohibits the absorption of oral iron, iron-dextran may be given intramuscularly. In other situations, it is no more effective than iron salts given orally. Specific diagnosis is the keystone to successful and safe iron therapy. Chronic, toxic iron overload is a potential danger in any patient being given iron in the absence of a proper diagnosis. The danger of accidental, acute iron poisoning in small children must be appreciated by any family in which medicinal iron is used.

Treating the Epileptic Child. The diet for the epileptic child is ordinarily the same as for a normal child of similar age. Some authorities advocate the ketogenic diet in selected cases, but the majority do not prescribe it, relying principally on carefully planned drug therapy. The ketogenic diet is relatively expensive, the child may not cooperate in taking it, it is troublesome to prepare, and there is increasing disinterest in its use. Still, its use should be considered as a possibility when drugs fail. Seizures in some patients seem to be precipitated by excessive ingestion of fluids or food. One should remember this in taking the history of the illness, and marked improvement may follow moderate fluid and food restriction when a child begins to overeat or drink large quantities of fluid.

Obesity. The problem of obesity is like a large jigsaw. It is only in the last few years that it has become possible to fit many of the pieces in, though even yet the picture is not complete. It is clear, however, that there are numerous interdependent factors and that no *one* factor causes obesity. It is known that excessive carbohydrate intake, resulting from parental food habits, from overprotection with encouragement of sweet eating, or from other causes, leads to increased absorption of glucose from the intestine, to more insulin production, to stimulation of the centers in the hypothalamus, and to metabolic changes in connection with the breakdown of carbohydrate to fat. Genetic factors may operate through some imbalance between the different centers in the hypothalamus or from a disturbance of the glucagon regulation, of the intermediary carbohydrate metabolism, or hormone control. While it may operate merely through habit formation, the familial liking of good food or a familial refusal to stop eating before considerable gastric distention occurs may be a factor in obesity. Habitual overeating may cause secondary metabolic and hormonal changes. For obesity to develop, there must be an imbalance between intake and output, and an interaction of genetic, constitutional, metabolic, endocrine, hypothalamic, and other factors.

Treatment of Anorexia. Anorexia in infancy and childhood is a widespread complaint, consisting of poor appetite in an otherwise healthy child, often with revulsion for specific foods and accompanied by gastrointestinal autonomic dysfunction. It is brought about by the efforts of the parents or their substitutes to induce the child to eat. The problem can exist alone but is usually indicative of more or less severe disturbance in family relationships — mother-child relationships in particular. The treatment described in this article is based on enough deliberate restriction of food to make eating a privilege rather than a duty. Enduring good results depend on the doctor's success in improving other areas of the child's life in keeping with his age or abilities. Too often a degree of psychopathology exists in the family which makes feeding and other problems only partly amenable to pediatric treatment. In some cases psychiatric treatment would be required to produce lasting effect.

THE LANCET

No. 7037, July 12, 1958

*Intrinsic-factor-inhibiting substance in serum of orally treated patients with pernicious anaemia. M. Schwartz.—p. 61.

No. 7038, July 19, 1958

*Incidence, aetiology, and prevention of heat illness on ships in the Persian Gulf. C. S. Leithead, J. Guthrie, S. DeLaPlace, and B. Maegraith.—p. 109.

No. 7039, July 26, 1958

*Goitre and arteriosclerosis. U. Uotila, J. Raekallio, and W. Ehrnrooth.—p. 171.

*Diet and cardiovascular disease in Finland. P. Roine, M. Pekkarinen, M. J. Karvonen, and J. Kihlberg.—p. 173.

*Serum-cholesterol studies in Finland. A. Keys, M. J. Karvonen, and F. Fidanza.—p. 175.

Intrinsic-Factor-Inhibiting Substance. Intrinsic-factor-inhibiting activity was found in a considerable proportion of sera from patients with pernicious anemia treated orally. Serum from healthy persons and patients with untreated pernicious anemia contained no such activity. Intestinal absorption of vitamin B_{12} proved to be normal in some cases with inhibiting activity in the serum. As the intrinsic-factor-inhibiting activity operated also against human intrinsic factor, such activity is probably not the sole cause of the intestinal blockade following long-continued oral treatment of pernicious anemia.

Heat Illness. A vast international fleet of oil-tankers now sails in the Persian Gulf, and heat illness aboard these ships is a serious problem. One hundred twenty-eight such cases seen at one port in the summers of 1956 and 1957 are reported, among which were 3 cases of heat hyperpyrexia (1 fatal), 5 of borderline heat hyperpyrexia, 59 of salt-deficiency heat exhaustion, 1 of anhidrotic heat exhaustion, and 60 of minor heat syndromes. A large proportion of these cases occurred in August of each year. Tanker crews going to the Persian Gulf are exposed to heat especially in the ten days after they leave the Suez Canal. During this time they must become rapidly acclimatized or regain the acclimatization lost after their previous voyage. The additional heat stress of engine rooms and galleys accounted for over half the cases. If heat illness is to be prevented aboard such vessels, officers must have fuller understanding of the risks. Crews must be induced to take supplementary salt in quantities sufficient to replace what they lose in sweat, and officers must be readier to limit activity before it becomes dangerous.

Goiter and Arteriosclerosis. Postmortem findings in 250 persons who died of coronary sclerosis are compared with the findings in 250 persons who died from other causes. Goiter was commoner and the average weight of the thyroid was higher in those with coronary sclerosis. Among the coronary-sclerosis cases, those with goiter had a tendency to lower average age at death and a higher average heart-weight. Comparison of body build showed that the persons with coronary sclerosis were slightly shorter and heavier than the controls. Among those with coronary sclerosis, those with goiter were heavier than those without. These findings are correlated with observations in Finland on the nature and distribution of endemic goiter, the iodine content of the food, and the distribution of

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- 1 tablespoon Worcestershire Sauce
- 1 cup finely chopped onion
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Blend all ingredients together until smooth. Place in two loaf pans (8"x 4"x 2"). Bake in moderate oven (350°F.) for about 1 hour.

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coronary sclerosis. It is concluded that goiter and arteriosclerosis may have a pathogenic relationship, possibly through hypothyroidism and the overproduction of thyroid-stimulating hormone by the pituitary gland.

Diet and Cardiovascular Disease in Finland. To find out if the higher incidence of cardiovascular disease in East compared with West Finland is due to dietary differences, dietary surveys were made in two areas of the country. The food consumption of eighty-four families during seven days in summer and forty families in winter was determined by weighing, and the daily calories and nutrient intakes per capita per day were calculated. The average fat consumed each day was 98.9 to 105.0 gm. per capita, being very similar in West and East and in summer and winter. The mean percentage of energy derived from fats was within the limits of 34.4 and 35.0 per cent. The intake of saturated fatty acids was a little larger in the East, and that of linoleic acid and other poly-enes in the West. However, these differences were not statistically significant. In both areas, the intake of saturated acids compared with that of poly-enes was rather large. The ratio of saturated acids to poly-enes was higher in the East than in the West. Considerable differences were found in intakes of iodine, ascorbic acid, and vitamin E, being significantly larger in the West. The low iodine content of the diet, causing hypothyroidism and thus a rise in the serum cholesterol level, might be partly responsible for the high serum cholesterol levels and coronary mortality in Finland in general and in East Finland in particular.

Serum Cholesterol in Finland. Statistics indicate unusually high mortality and morbidity rates in Finland as a whole, and in East Finland in particular, ascribed to coronary disease. Total cholesterol and that in the alpha- and beta-lipoprotein fractions were measured in 869 clinically healthy men ages twenty to fifty-nine years in Helsinki and in two rural regions. Total cholesterol levels tended to be higher than those observed in populations elsewhere, and this excess was accounted for by beta-lipoprotein cholesterol. Farmers' wives resembled the men in the rural areas as regards total cholesterol but had higher levels of alpha-lipoprotein cholesterol. In the forty to forty-nine age range, the men in occupations demanding heavy physical work had lower cholesterol levels, but at other ages cholesterol level appeared to be unrelated to habitual physical activity. Smokers tended to have higher cholesterol levels and lower blood pressures than had non-smokers. At all ages and activity levels, the men in East Finland tended to have higher levels of total serum cholesterol than those in West Finland, and this difference was entirely accounted for by beta-lipoprotein cholesterol. However, when the men in Helsinki were classified according to region of birth, there were no significant differences, suggesting that the regional differences are not due to hereditary influences.

MILITARY MEDICINE

Vol. 123, July, 1958

*Panel on control of food and water borne diseases. Staff, Navy Preventive Medicine Unit #2, Naval Base, Portsmouth, Virginia.—p. 40.

Food- and Water-Borne Diseases. Outbreaks of food-borne and water-borne diseases continue to be a problem in the Navy. There is evidence of outbreaks which have involved the greater portion of the ship's crew, not leaving enough men to handle the ship safely. In the case of food there are several ways in which the agent may enter and cause illness. It may enter by way of dust-carrying bacteria; unsanitary dishes and utensils; hands of food service personnel; coughs and sneezes; and insects. More than one-half of all the reported food-borne outbreaks are due to gross carelessness and deficiencies in the sanitation of the messes or unsanitary food preparation and serving. Outbreaks can be prevented by maintenance of high standards in messing sanitation and food handling. Commissary personnel are important in preventing food-borne disease. They must remember the importance of refrigeration; need for covering food, especially milk and dairy products; and the importance of personal hygiene. Water-borne disease aboard ship is a constant threat and prevention of contamination in the water supply system requires constant vigilance. The ships travel all over the world and while at sea provide their own water. However, when they are anchored in foreign ports, they must many times obtain water from questionable sources. In the small confines of the ship where people live in close contact with each other providing ease of transmission, constant vigilance is required to prevent epidemics of food- and water-borne diseases.

NURSING OUTLOOK

Vol. 6, August, 1958

*Chewing gum and you. C. A. Levinson.—p. 451.

*Slender, safe, and secure. A. R. Harmon, R. A. Purhonen, L. S. Rasmussen, and W. H. Brown.—p. 452.

Chewing Gum and You. This author, a dentist, does not want to eradicate the gum chewing habit, but warns that it should not get out of control. Excessive gum chewing can cause much damage to all types of dental work, such as inlays and fillings. He cites an example of a young woman who literally chewed her teeth away. None of this article is intended to discourage gum chewing, but rather to stress moderation.

Slender, Safe, and Secure. The first part of this article is concerned with the physical and emotional problems of obesity in the adolescent girl. School public health nurses in Salt Lake City in cooperation with the city Health Department, Department of Psychiatry at the University of Utah, and the city Board of Education organized a planning group to determine the method of approach and to develop objectives and evaluation techniques. Four groups of girls were used. One group concentrated on physical aspects, one on emotional aspects, one on a combination of these, and one was the control group. The group approach, and especially the combination approach, was successful in helping students understand the reasons for overweight, in motivating them to lose weight and maintain normal weight, and in changing attitudes. The results showed that nurses are capable of carrying out this type of project. The second part of this article is by a psychologist who was a consultant to the project in which he discusses group action.

NUTRITION REVIEWS

Vol. 16, September, 1958

*Nutrition and behavior. J. Brozek.—p. 257.

Nutrition and Behavior. The significance of cultural factors in nutrition studies has been shown by several workers. Food habits are thoroughly immersed in culture, and they affect food intake as importantly as do the soil, the climate, and the level of economic and agricultural development. Food-directed behavior involves much more than physiologic need. It includes appetite, esthetic enjoyment, and remote goals, including longevity. Thus, the behavior of organisms toward food provides a useful information model for the general study of the dynamics of human behavior. In large parts of the world the crucial problem is not the combat of frank nutritional deficiencies, but rather the development and popular acceptance of a diet conducive to maximal health and vigorous longevity. Food habits and the attempt to modify them may play important roles.

PUBLIC HEALTH REPORTS

Vol. 73, August, 1958

*Pathological studies in man after prolonged ingestion of fluoride in drinking water. E. F. Geever, N. C. Leone, P. Geiser, and J. E. Lieberman.—p. 721.

*Fluoride deposition in human bones after prolonged ingestion of fluoride in drinking water. I. Zipkin, F. J. McClure, N. C. Leone, and W. A. Lee.—p. 732.

Excessive fluoride in water and bone chemistry. Comparison of two cases. F. J. McClure, H. G. McCann, and N. C. Leone.—p. 741.

Prolonged Ingestion of Fluoride. Microscopic examinations were made of bones from thirty-seven persons coming to necropsy who had resided ten years or more in communities where the drinking water contained 1 to 4 p.p.m. of naturally occurring or artificially added fluoride. Bone specimens from controls who had lived in areas where the drinking water contained less than 0.5 p.p.m. fluoride were used for comparison. The microscopic examinations showed no significant differences between the fluoride-

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exposed group and the control group that could be related to fluoride intake.

Fluoride Deposition in Human Bones. Selected bones and skeletal tissue—iliac crest, rib, vertebra, sternum, and intervertebral cartilage—obtained from persons who had drunk water containing 1 to 4 p.p.m. fluoride for at least ten years were analyzed for ash and fluoride. At any given level of fluoride in the drinking water, the various bones contained, on a dry, fat-free basis, similar concentrations of fluoride. The concentration of fluoride in the bones increased in an essentially linear fashion with an increase of fluoride in the drinking water up to 4.0 p.p.m.

ROYAL SOCIETY FOR THE PROMOTION OF HEALTH JOURNAL

Vol. 78, July-August, 1958

*Symposium on food additives. (a) Technological considerations. F. H. Banfield.—p. 302.

*Symposium on dental disease—the last great epidemic. (a) The nature of dental disease. G. L. Slack.—p. 476.

Food Additives. This symposium discusses technologic and biologic considerations of food additives. Under technologic considerations, examples are given of the various additives used and how their performance may be judged and controlled. The second part considers the possible toxicity of food additives or of processed food.

Dental Disease. This paper is a symposium on dental disease including the nature of dental disease; the responsibility for dental care; and the promotion of dental health through education. The three dental diseases discussed are dental caries, periodontal disease, and malocclusion. Diet plays an important role in dental caries. It has been shown that the eating of refined carbohydrates between meals is a major factor in causing dental caries. Soft foods do not require mastication which is needed to stimulate saliva flow. Oral hygiene is also stressed. A two-way responsibility for dental care exists—that of dental science to search for preventive measures, controls, and new techniques, and that of the community to support and encourage its advancement. The expectant mother, the health visitor, the doctor, the school teacher, and the local public authorities can achieve the goal of educating future generations in dental health.

SOUTHERN MEDICAL JOURNAL

Vol. 51, July, 1958

*Definition, diagnosis, and management of arteriosclerotic heart disease. T. M. Blake.—p. 827.

Vol. 51, August, 1958

*Chronic relapsing pancreatitis and pancreatic insufficiency. T. J. Manson.—p. 1051.

Arteriosclerotic Heart Disease. The term "arteriosclerotic heart disease" refers to the clinical manifestations of coronary atherosclerosis. The three basic approaches to control consist of: (a) simply arresting the symptoms and signs as they arise; (b) preventing manifestations; and (c) attempting to prevent atherosclerosis or resolve lesions already present. Currently available evidence does not justify requiring the average patient to submit to a severely restrictive diet or to inconvenience himself by taking any specific medicines. The patient should be instructed to avoid obesity; otherwise, treatment should be symptomatic. If serum cholesterol is at all elevated, the patient is unusually young, or there is a familial history of coronary atherosclerosis, one is justified in adding nicotinic acid, sitosterol, or perhaps even unsaturated fatty acids to the regimen on the assumption that these do no harm and might do some good.

Pancreatitis. Etiology and sequelae of chronic relapsing pancreatitis are not fully understood. Medical management consists of relief of pain, prevention of further damage to the pancreas, and control of various signs of insufficiency. The diet should eliminate foods that tend to induce irritability of the gastrointestinal tract. These include raw fruits, fried foods, rich pastries and candies, nuts, bran and other coarse cereals, pork, raw vegetables, dried beans and peas, thickened gravies, buttermilk, rhubarb, greasy foods, and excessively fatty and highly spiced foods. Due to weight loss, these patients often must eat a diet whose caloric value is 50 per cent or more above normal. Since fats are poorly tolerated in most instances, the calories must be supplied by a high-protein, high-carbohydrate diet.

COLLEGE AND UNIVERSITY BUSINESS

Vol. 25, August, 1958

*Frustrations in food service. R. J. Lichtenfelt.—p. 42.

Frustrations in Food Service. It is ironic and often discouraging, when, in many instances, the advice, experience, and recommendations of a specialist (such as a food service director) are ignored or overruled. This is particularly true in regard to food services (in a college or university) where business officers often make vital decisions in regard to construction design, layouts, equipment needs, board rates, personnel increases, and hours of service. All of these decisions are made without sufficient experience or evidence to support their conclusions and, often, without any consultation with the food service director. If a business officer honestly wants an efficient and well run food service, he should realize that food service operation is not a job for a novice; it requires competent, experienced personnel. He should express confidence in the food service director by giving him room and freedom in which to operate and allowing him to share in making decisions in regard to his own area. He should assign responsibility to the food service director, but also provide him with sufficient authority to carry out his responsibilities. He should not make it difficult for the food service director to get through to the administrator. Regular meetings should be scheduled at which policies and problems can be discussed.

DINER DRIVE-IN

Vol. 17, August, 1958

*Ideas from the Blue Onion.—p. 22.

*Deep dish strawberry pies.—p. 27.

*Menu pricing. D. Lundberg.—p. 28.

*Salad salesmanship.—p. 35.

*Cleaning stainless steel.—p. 36.

*Menu exchange.—p. 56.

Ideas. The operation of a unique and successful drive-in restaurant in Las Vegas is described. An inside coffee shop has an inside seating capacity of 108 at counter and booths. Customers get to do some of their own food preparation with electric toasters spotted on the counter and at booths so that they can make their own fresh hot toast. The kitchen layout is arranged to provide fast service for both car service and inside service. There are two kitchens. One is primarily a short order and service kitchen which includes a double steam table, two fry stations, and a sandwich counter. The other kitchen is for heavy cooking and baking. Help is geared as closely as possible to actual needs. Charts are kept on daily, weekly, and monthly business results, and these records act as an accurate guide to business trends. To meet the stiff competition in Las Vegas, menu prices are figured carefully. Every effort is made to serve the food as attractively as possible. "Million dollar" lunches for a dollar, low-price family dinners, and home-baked desserts are featured.

Deep Dish Strawberry Pies. A recipe for deep dish strawberry pie is given, accompanied by photographs, showing the step-by-step procedure.

Menu Pricing. Rules of thumb for menu pricing have been popular. Some say that the price should include a 40 per cent cost of food, others 33 1/3 per cent, while still others say 25 per cent. None of these is accurate. Rather than rule by thumb, menu pricing should be done on a logical basis with a rationale that is well understood. Several factors must be considered. First, food and labor costs must be determined. Generally, food and labor costs together should not exceed 72 per cent of the gross sales. A small percentage should be allowed for waste, as well as for employees' meals. If there are unusual advertising costs, or if the operation is providing something out-of-the-way in atmosphere, this must be added. Menu pricing is dynamic. The prices must be reviewed periodically to keep abreast of food and labor costs.

Salad Salesmanship. Two photographs depict the variety of salads which have proved to be very popular at a chain of drive-ins in Vancouver,

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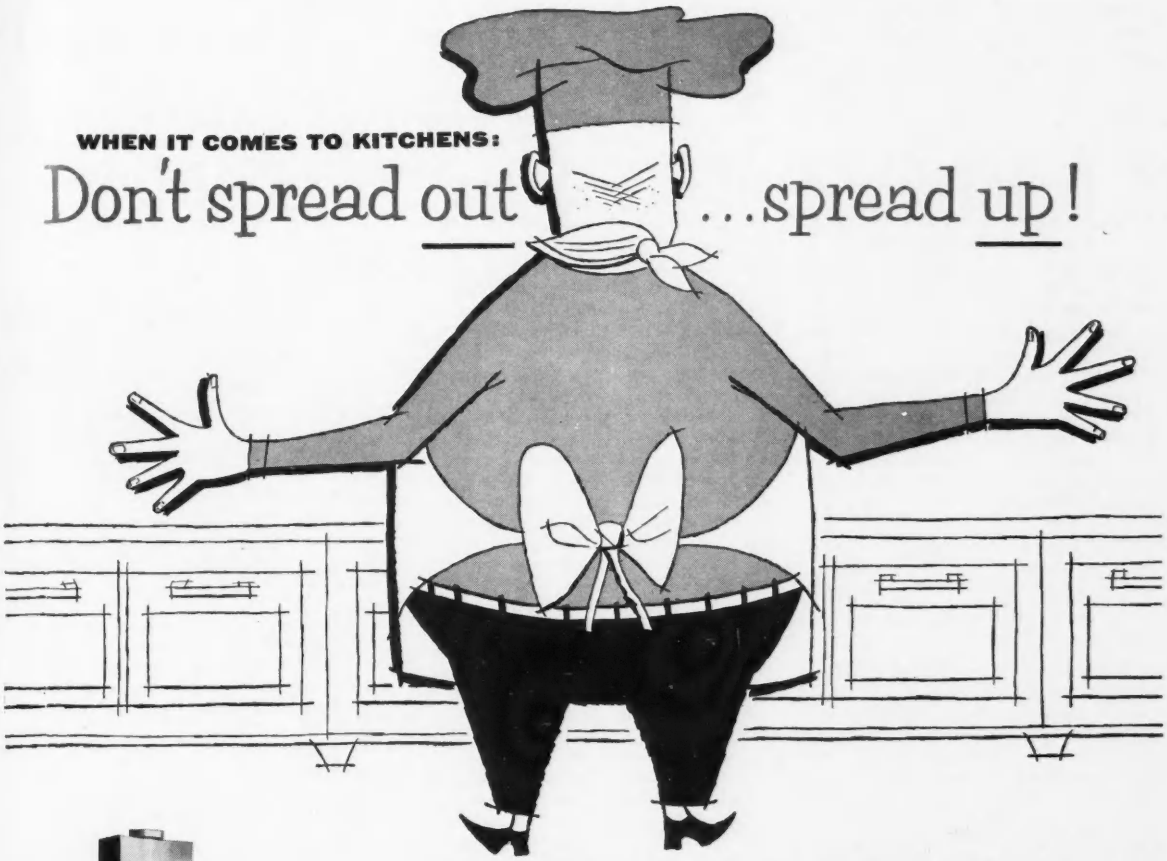

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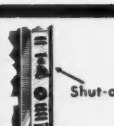

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British Columbia. Attractive arrangement on the plate is one of the reasons for their success.

Cleaning Stainless Steel. Suggestions for easy cleaning of stainless steel pots and pans and exterior architecture are given. Normally, ordinary soap and water will do a fine job. At times, mild abrasive cleaning powders are needed for stubborn spots. In the latter case, always remember that abrasive cleaners should be rubbed in the direction of the polish lines on the steel surface to preserve the original finish. Specific instructions for removing heat tint and hard water films and scales are given.

Menu Exchange. An illustration is given of a unique menu which may be folded and which the restaurant urges customers to take home, so that they may consult it before arriving at the restaurant and thus be ready to order.

FORECAST FOR HOME ECONOMISTS

Vol. 74, September, 1958

*What about "fad" diets? A. J. Bricker.—p. 30.

What about "Fad" Diets? The instructor's reaction to a student's announcement "I've just gone on a diet" is most important in determining the course of future nutrition education. The instructor must be careful not to create any resentment on the part of the student by inferring that her diet is not a proper one and that the student is not doing the right thing in trying to lose weight. Rather, the instructor should adopt a positive approach. She should offer her assistance and gradually, through suggestion, replace the fad diet with one that follows the basic principles of sound nutrition. Sometimes, the most direct approach is not the one that will achieve the best results. The instructor should keep the end goal in mind and overlook, if necessary, certain bad habits. With proper guidance, the student will eventually replace them with good habits. An important thing to remember is to keep the lines of communication between instructor and student intact. Without that, it is impossible to achieve results.

HOSPITAL MANAGEMENT

Vol. 86, August, 1958

*Special outpatient dining room. B. A. Rogers.—p. 104.

Vol. 86, September, 1958

*A peak through the tray assembly looking glass. L. Dardarian.—p. 100.

Special Outpatient Dining Room. Methodist Hospital in Indianapolis offers a unique service in the form of a dining room operated only for hospital personnel and members of the community requiring modified diets. Each person served must be referred by an attending physician and have a prescription stating the type of diet required. This dining room offers a service to out-patients which is not available in other restaurants and cafeterias in the city. The majority of meals served are for diabetic patients, although low caloric, high caloric, bland, high-protein, and other diets are served daily. This dining service began thirty years ago when a former diabetic patient could not find a restaurant near his office to serve him. He requested permission to eat his lunch at the hospital in the lounge of the Diabetic Nursing Unit. While providing a much needed service, this outpatient dining room also serves as an excellent public relations medium for the hospital.

Tray Assembly. An examination of the tray assembly process is in order since tray assembly times constitute the peak periods of kitchen activity. If any step of the process is poorly handled, the entire production will suffer, since each successive operation is dependent on the previous one. A good tray line must also be judged by the degree to which work is uniformly distributed along the stations of the line. Check each station to determine how much time is spent working and how much time is spent waiting. If there are large variances between work time and wait time from station to station, obviously a redistribution of tasks is in order. It is not felt that speed, for its own sake, is an essential attribute of the "good" tray line. In some instances, lengthening the time for tray assembly might result in a reduction of the number of hands required. The principles relative to any chain-step production process (reduce amount of wait time, uniform distribution of work) have application to tray assembly service.

HOSPITALS

Vol. 32, August 1, 1958

*How much do doctors know about hospitals? S. R. Gottlieb.—p. 33.

*You—the ambassador. H. A. Barth and T. D. Griffiths.—p. 39.

*How to face up to administrative problems. E. V. Pinney.—p. 65.

Vol. 32, August 16, 1958

*Six dietary procedures that bring compliments from patients. E. Sanderson.—p. 62.

Vol. 32, September 1, 1958

*How much it costs for coffee and newspaper 'on the house'? F. A. Botting.—p. 48.

*The nutritive value of cooked meat. R. M. Leverton.—p. 82.

What Do Doctors Know about Hospitals? The study reported here indicates that, in the two hospitals studied, the levels of knowledge of hospital administrative affairs among medical staff generally are not very high and that knowledge of personnel administration and financial management is rare. The study also indicates that selected professional characteristics do not seem to have much effect on the levels of knowledge, although status on the staff and frequency of visits to the hospital have some impact. Finally, the study suggests that something in Hospital A has resulted in greater knowledge among its staff members than is found among the staff members of Hospital B. Doctors would seem to have a great deal to learn about hospital administrative affairs. If it is felt that doctors should play a broad role in the hospital, and if they are interested in learning more about the hospital (as the study tends to indicate), then it is time for hospital administrators to conduct comprehensive programs about hospital administrative affairs for the members of their medical staffs.

You—The Ambassador. It seems that people both like and dislike a hospital at the same time. This fact underlies a hospital public relations program in Michigan and northeast Ohio which has many elements departing from the traditional approach. The program places major emphasis on the employee's role in public relations and is directed entirely at the employee rather than the public. Materials used in the program are serious but whimsical, representing an endeavor to tell an important story without becoming pedagogic. The program is a cooperative venture between two hospital organizations — the Michigan Hospital Association, which serves some 230 member institutions, and the Cleveland Hospital Council, which services some 60 hospitals in northeast Ohio. Surveys showed that while in-service training of employees is handled well by most of the hospitals concerned, there was a need for bolstering the public relations education of employees. The theme chosen for the public relations program was based on the concept that each employee should be an ambassador of good will for the hospital that employs him. A booklet, "You—The Ambassador," was created which offered suggestions for employee behavior. Supporting material was developed, such as sample articles for the hospitals' employee publications. An attachment for pay checks was proposed. Administrators were urged to address personal messages to employees to be attached to the booklet. It is stressed that such a program is not a one-time affair. To be successful, it must be continuous. Using a basic theme, such as "You—The Ambassador," a hospital should develop a constant public relations program which will deliver lasting results.

Facing up to Administrative Problems. The dietitian today is facing a new era of competition. The food service management firm, the industrial caterer, and the individual who has been trained in hotel or restaurant management are moving in. The dietitian should evaluate her role and see how she can best fill it, in order to meet this competition. If the dietitian is determined to be a manager as well as a professionally trained specialist in feeding, she will be faced with problems from three sources—her superiors, her colleagues and customers, and her subordinates. In thinking of her superior, the dietitian must remember that she is a member

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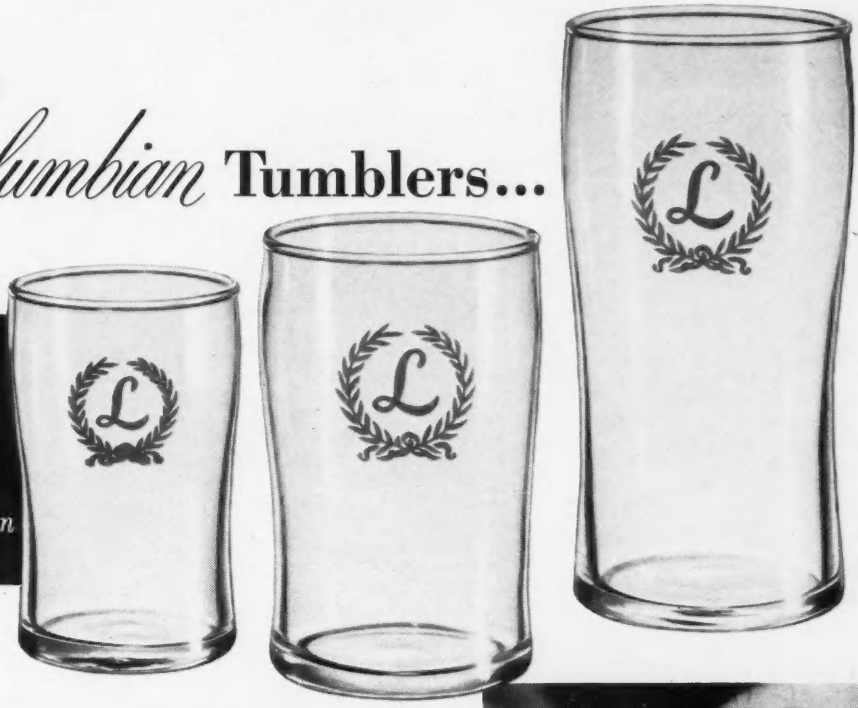

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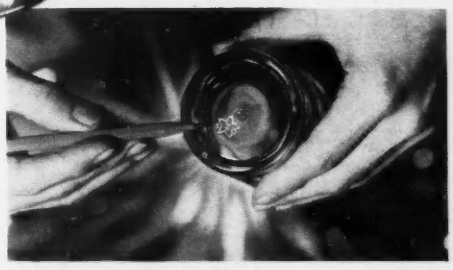

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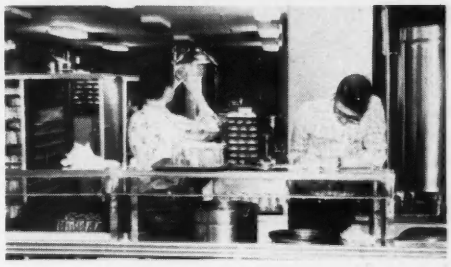

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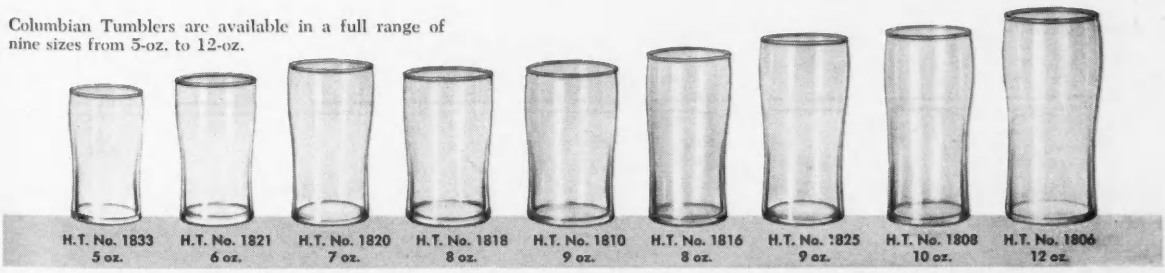

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of his team. She should keep him informed of what she is doing; he should tell her what he wants done. Before taking a problem to the administrator, she should think it through clearly and be prepared to state or suggest an intelligent course of action. She should try, also, to understand the administrator's problems. The dietitian should remember that her department exists for only one purpose —service. She should try to create a positive atmosphere. She should not be inflexible and bound to rigid rules and regulations. There are times when these can be broken with no great harm, while at the same time creating a good feeling toward the dietitian and her department. In dealing with subordinates, the dietitian must be trusted and should create a feeling in her employees that she is interested in their suggestions and complaints. Otherwise, no two-way communication can exist. It is the dietitian's task to create and maintain an atmosphere in which all employees will be stimulated to want to produce.

Dietary Procedures that Please Patients. The article describes the food service at San Diego's Donald N. Sharp Memorial Community Hospital. The six procedures mentioned in the title are: (a) Service of foods that are usually found in the home. (b) Service of foods at times patients are accustomed to eating at home. (c) Use of volunteers to distribute selective menus to patients on normal diets. The dietitian visits patients on modified diets each morning to discuss with them their luncheon and dinner menus for the day. (d) Elimination of the "current diet order" listing. It is felt that trying to keep such a list currently correct is time-consuming and not as accurate as the tray cards, which are checked by a nurse against her card file an hour before meal service. (e) Delivery of trays by nursing rather than dietary personnel. The nurse is familiar to the patient. Also, this permits faster service so that food remains hot until served. (f) Service of nourishments to patients. If desired, snacks are served at no charge to the patient. The author stresses that it is the mutual understanding of functions that allows dietary and nursing personnel to work in harmony and makes it possible to keep patients happy and well fed.

Cost of Coffee and Newspaper Service. The public relations value to a hospital of an early morning coffee service and copies of morning and evening newspapers, at no charge, has been well recognized. One hospital which has these services wanted to know how much they cost. Last year the hospital served 39,000 cups of coffee at a cost of 4.812 cents per cup. Total cost was $3586 per year for the morning newspaper and coffee services ($1710 for the newspaper and $1876 for the coffee). At 6:30 a.m. Monday through Saturday, a food service employee visits private and semi-private floors with a coffee cart equipped with vacuum jugs of coffee and hot water for tea. The cart has space for accessories, such as cream and sugar, a built-in paper cup dispenser, and shelves for newspapers. At the nurses' station, the "coffee" girl is given a list of all patients whose diet order, scheduled treatments, or personal wishes would prohibit tea or coffee that day. An average of 125 cups of coffee or tea are served between 6:30 and 7:30 a.m., about an hour before breakfast. During the rest of the day, the coffee girl serves as a dietary office worker and delivers and picks up selective menus.

Nutritive Value of Cooked Meat. The fat and caloric value of cooked meat, as well as its protein content, is a subject of great interest to hospital dietitians and patients. Dietary orders often include restrictions on fat and calories which require composition figures for the different portions, lean, marble and fat, and the different kinds of meat. A study was made of the nutritive value of cooked beef (Choice grade), veal, lamb, and pork. Three portions of each cut were studied: lean, lean marbled with fat, and fat. The different cuts of meat were cooked by standard recommended cookery procedures. No appreciable difference was found in the energy, protein, and fat values of the extremely lean portion of cooked beef, veal, lamb, and pork, or of the lean-plus-marble portions of these meats. Composition of the separable fat portions of the meat was similar. Veal, however, was higher in protein and lower in fat than other kinds of meat. The separable fat contained approximately one-third as much phosphorus and magnesium as the lean and marble portions. Thus the separable fat can supply not only energy, but appreciable amounts of these two minerals. The article is accompanied by tables which give breakdowns of the compositions of the various cuts.

INPLANT FOOD MANAGEMENT

Vol. 5, August, 1958
*Potatoes—the chef's best friend.—p. 49.

Potatoes—the Chef's Best Friend. Remarkable performance combines with amazing economy in the new quick potato products. The development of these products follows the needs of the mass feeding industry to save time, reduce labor costs, eliminate waste, provide planned portions, present new food ideas, and maintain high quality. Precooked to shorten cooking time to an astonishing minimum of minutes, packaged for freezer storage or lengthy shelf life, these quick potatoes may be prepared in the desired quantity and as needed. They are available in many forms—French fries, hash brown squares or oblongs, patties, mashed, or diced. The ready availability of these different forms of potatoes permits much more

The American Hospital Association reports that the average hospital has 101 full-time personnel for every 100 patients. And this means that in above-average hospitals the personnel-to-patients ratio is even higher!

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variety in menus. There has been no sacrifice in flavor, color, texture, and fresh-goodness in these quick potato products.

THE MODERN HOSPITAL

Vol. 91, August, 1958

*"Dining out" makes patients feel better. D. A. Gee and D. A. Barrett.—p. 98.

"Dining Out" Makes Patients Feel Better. The Jewish Hospital in St. Louis has established an ambulatory feeding program to make food service become part of the solution, rather than part of the problem, in treating the patient. This has been applied in three ways: (a) dining facilities in dayrooms for patients on the acute divisions; (b) centralized dining facilities for patients with chronic disease and those undergoing rehabilitation; and (c) specialized facilities for adult and child psychiatric patients. Facilities for patients with a prolonged illness are of two varieties. For the more active, a centralized dining area in the rehabilitation division is available. This room has standard tables and chairs, rather than specialized equipment, since it is felt that it is good therapy to train patients to use the equipment they will encounter when they leave the hospital. Despite the different age groups and disabilities involved, the patients mix well together. The biggest advantage and most encouraging feature about ambulatory dining is that it adds one more opportunity to provide good, easily supervised therapy for the patient in conjunction with a normal, day-to-day activity of life.

NRA NEWS

Vol. 1, August, 1958

*Why standard recipes? J. A. Cline.—p. 5.

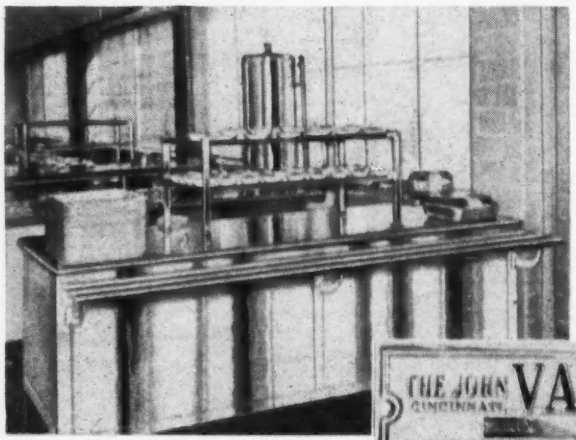
*Policies—your guide lines for action. T. Elliott.—p. 9.

*On food handling precautions. J. J. Ruffley. —p. 11.

Why Standard Recipes? There are many advantages in using standardized recipes. One of the very important ones is that they prevent the operator from becoming dependent on any one cook or chef. With standardized recipes, accurate weighing and measuring equipment, good cooking equipment, and supervision, excellent products can be turned out even with workers who have had little or no experience. There is less waste from failures with standardized recipes. Then, too, they are an aid in menu pricing, since the same product will be made in the same way, using the same kind of ingredients every time. Standardized recipes are also an aid in portion control. This, in turn, is an aid to food cost control. Today, there are many reliable sources for excellent standardized recipes. Test kitchens of large companies are one source; others are trade magazines, universities, and the U.S.D.A.

Policies—Your Guide Lines For Action. Many of the decisions which you face daily could be simplified if you have a clearly thought-out set of policies by which your restaurant is run. Policies are statements of principles which provide guide lines for decision and action. Policies should grow out of objectives. Too often policies are confused with methods and procedures. Policies may often require implementation by established regulatory methods and procedures. Policy answers the questions *what* and *why*, while method sets forth *how*. Ten principles of policy formulation are given.

Food Handling Precautions. The matter of safety in food handling is of great importance. It should not be overlooked in the rush of everyday activity. Foods may be contaminated in a number of ways, but most often through human beings. It is not possible to be too careful when handling foods. The precautions which should be taken to prevent contamination are relatively simple. Perishable foods should be kept under refrigeration until used. Keep hot foods hot (150°F. or above) and cold foods chilled (40°F. or less). Remove leftover foods from food warming devices immediately after the feeding period. Cool leftover food at room temperature promptly and place under refrigeration as quickly as possible. Never hold hot foods in food warming devices from one feeding period to the next. In-



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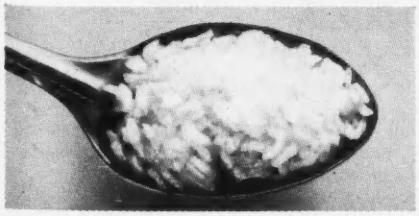

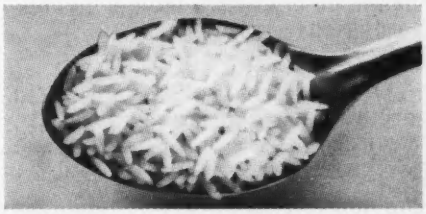

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struct employees to wash their hands thoroughly with soap and water after using the lavatory and before handling foods. Eliminate flies, roaches, rodents, and other pests which may transmit illness. Never use galvanized containers for storage of moist or acid foods. Check with your local health authorities if you have questions on sanitation. They will be able to help you.

PERSONNEL JOURNAL

Vol. 37, July-August, 1958

*Training today: its whys and hows. K. Evans.—p. 91.

*Let's stop professionalizing. J. M. Jenks.—p. 96.

*Brainstorming: another "gimmick"? B. J. Speroff.—p. 98.

Vol. 37, September, 1958

*Questions pack power. M. Macurda.—p. 135.

Training Today. Without exception, every person in the working world could be helped in some way by being included from time to time in appropriate training activities. Since learning through energetic participation is so practical, the following devices are used often: case studies, job instruction, "cracker barrel" sessions, role playing, incident processes, brainstorming, job rotation, buzz sessions, directive and non-directive conferences, feed-backs, creative problem solving, and follow-up work. These methods are supplemented with occasional lectures, counseling, source and reference materials, and audio-visual presentations. In training employees, it is advised that each job category be analyzed so that it is known what the objectives are; then it will be possible to choose the best method of training.

Let's Stop Professionalizing. Personnel people, in their efforts to be recognized as "professionals" by top management, are actually cutting themselves off from management, the author believes. Instead of joining management, personnel and training people have encouraged setting themselves off in consultative positions. This may make them appear more important at the moment, but it will be of no benefit in the long run. The author suggests that personnel people should forget their "self-importance." They should join management, and they will find that there will be greater understanding of the problems and functions of the personnel department.

Brainstorming: Another "Gimmick?" Brainstorming, a creature of the creativity search, is a free association process in which full rein is allowed the mind to formulate and present ideas, opinions, and thoughts spontaneously without prior benefit of screening as to their relevance, utility, validity, purpose, and truth. Essentially, it is a product of group activity. There are several methods by which it is practiced, but the main premise is the same, i.e., that out of these free ideas will come something of value. The author agrees to the usefulness of his method, but challenges management's use of it. He says that, in too many cases, nothing happens to the ideas after the brainstorming session is over. The answer to continuing successful creative output will not be found in developing and training people to apply their creative minds, but rather through the purposeful cultivation and nurturing of the kind of industrial atmosphere where creative efforts erupt spontaneously and without straining. The creative mind does not produce on order, or by directive; nor are lures, inducements, or training "gimmicks" essential to its functioning.

Questions Pack Power. The properly-worded question is a wonderful "power" tool. Its power lies in its requirement of an answer. To be most effective, a question should be short and precise. Questions should be "open ended," not "closed." Questions starting with *do, can, shall, will,* and such words are closed questions which are almost always answered by *yes* or *no.* A far better question form would be the use of provocative words, such as *why, who, what, where, when,* and *how,* as question starters. Then you will know the "why" behind a yes or no answer. Unanswerable questions should be avoided. Try not to offend through questions. Questions that put the individual on the spot often under-

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RESTAURANT MANAGEMENT

Vol. 83, August, 1958

*Nationality dishes, regional foods and special recipes. L. Nejelski.—p. 62.

Nationality Dishes, Regional Foods, and Special Recipes. In designing or analyzing a menu, it is well to answer these fundamental questions first. (a) To whom are we trying to cater? (b) What type of foods are we trying to sell? (c) What kind of service do we provide? The menu is the basic instrument of communication between the restaurant operator and the people he is trying to serve. Consequently, it is an important advertising medium for him. There are several ways to merchandise your menus, such as: through "nationality" foods, by specializing in Italian, German, or some other type of food and carrying the theme out in the menu and the decor; through regional foods, i.e., seafood in New England and pecan pie in the South; through special recipes, when a particular food prepared in your own way draws customers; through displays, such as dessert trays, live lobster tanks, and so on; and through cafeteria displays.

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SCHOOL LUNCH JOURNAL

Vol. 12, September, 1958

*A four-step training plan gets results. M. R. Peterson.—p. 36.

Four-Step Training Plan. The most important steps in teaching are telling, showing, doing, and following-up. "Telling" may be done with bulletins, meetings, and constant direction on the job. "Showing" is best accomplished by periodic demonstrations, still pictures, movies, and personal example. "Doing" is practiced continuously by the employee. The "follow-up" involves periodic checking on the job, constant guidance and, most of all, encouragement. It must be remembered that training never ceases. It is in every movement and habit. Also, a supervisor should realize that employees are individuals and each reacts differently. Help them to develop their skills and find happiness and satisfaction in their jobs.

VOLUME FEEDING MANAGEMENT

Vol. 11, August, 1958

*Volume feeding trends. A. N. Wecksler.—p. 5.

*How to buy salmon.—p. 16.

*An expert makes trout amandine.—p. 18.

*Simplified utensil handling.—p. 24.

*Low calorie dishes.—p. 32.

*Hamburger: how to handle, cook and serve it.—p. 48.

Vol. 11, September, 1958

*Salad time all the time. E. Blair.—p. 16.

*Key to controlled production. J. H. Rudd.—p. 60.

Volume Feeding Trends. The author is writing from Europe, where he is a guest of the U. S. Air Force. He is interviewing top American military feeding officials and U. S. and European feeding specialists for the newest trends and developments affecting the volume feeding industry. He reports that in European restaurants, most food is still cooked to order. One sees few of the quick-service, snack-bar type of operations. The bulk of food is served fresh. Practically none is frozen and little is canned. Food costs are high in Europe, but the European volume feeder has a lower overhead and lower labor cost. The military services, for the most part, use food and equipment from the U. S. They buy milk, fresh vegetables, fruit, and eggs from European sources, however. The military is an important buyer on the European food markets but is not significant in the over-all picture. A major problem in troop feeding has been the utililzation of all the meat cuts. Troops show up at the mess hall when the menu shows steaks and roasts and stay away when it lists stews and hamburgers. On the European economy, the average GI can eat out when the menu does not appeal to him. This throws the feeding system out of kilter.

How to Buy Salmon. There are five varieties of salmon. (a) King, Chinook, or Spring salmon is the largest of the salmon family. Color, not

At simulated altitude of 40,000 feet, this pilot is enjoying a ham dinner. He fits a plastic nozzle to a tube and pushes it through an aperture in his helmet to his mouth. To eat, he merely squeezes the tube.

A NEW squeeze-tube method for feeding our men in space suits has been developed in the American Can Company laboratories.

Several thousand food-filled tubes are now undergoing rigorous performance tests by the Nutrition Section of the Aero Medical Laboratory at the Wright Air Development Center, Dayton, Ohio. The tubes contain 12 different liquid and semi-solid foods of high caloric density, formulated by the Quartermaster Food and Container Institute for the Armed Forces, Chicago.

In designing the tubes, scientists of Canco and Sun Tube Corporation, a subsidiary, had to produce a lightweight container strong enough to withstand food sterilization processes. The aluminum squeeze-tube and its auxiliary "pontube" feeding mechanism eliminate previous defects of high-altitude feeding caused by pressure differences inside and outside the space helmet.

Through the work of skilled scientists, effective research facilities, and the cooperative efforts of industry and government organizations, another advance is being made in mastering the space age.

CANCO AMERICAN CAN COMPANY

always uniform, ranges from a deep salmon red to a pinkish white. It is soft in texture, rich in oil and flavor. It separates into large flakes, making it desirable for salads and recipes where large pieces are desired. (b) Red, Sockeye, or Blueback salmon is deep red in color and firm in texture. It lends itself to serving as chilled salmon, in salads and in hot dishes. (c) Coho or River salmon is firm and large-flaked. It is red, but lighter than Sockeye. It is considered an all-purpose salmon, suitable for salads, sandwiches, and cooked dishes. (d) Pink or Humpback salmon is a small-flaked, fine-textured fish, delicate in flavor, ranging in color from light to deep pink. It is suitable for creaming, casseroles, and other combinations and for soups and sandwiches. (e) Chum or Keta salmon is a large-flaked salmon, coarser in texture and less delicate in flavor than the Pink. Because of its lack of color, it has its greatest value in cooked dishes where the factor of color is unimportant. Unopened cans of salmon stored in moderate temperatures keep indefinitely. Once cans are opened, contents should be kept covered and refrigerated.

Trout Amandine. In seven photographs, the chef at the famous Denver club shows how he prepares this popular dish.

Let CREAM OF RICE help solve your modified diet problems

1
EXTRA NOURISHMENT

Cream of Rice is rich in iron plus Vitamins B_1, B_2, and Niacin.

It gives quick energy fast, too. Actually within a few minutes after eating. Cream of Rice is easy to digest. Many leading pediatricians advise it.

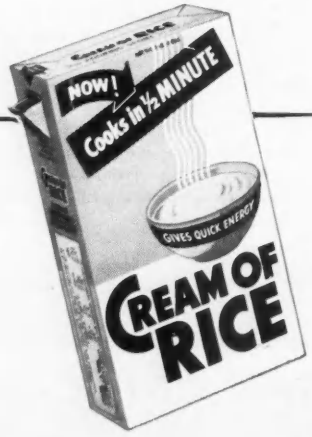
And many doctors recommend Cream of Rice in modified diets for food allergies, ulcers, high blood pressure, intestinal distress and old-age food difficulties.

2
EASY TO FIX

Now Cream of Rice cooks in just 30 seconds. That's 10 times faster! What could be easier . . . quicker . . . less work! It's a meal in half a minute. A delicious, nourishing, easy-to-digest cereal young and old enjoy.

3
CREAMY RICE TASTE

Cream of Rice has a delicate flavor. Different, delicious. This is a creamy rice treat that really tastes good.



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Simplified Utensil Handling. Photographs show the equipment used in one cafeteria operation to make soiled dish and utensil removal more efficient and less obtrusive. Mobile dish carts and enclosed conveyors make dish removal simple and quiet.

Low-Calorie Recipes. Quantity recipes for jellied tomato appetizer, banana lemon-mace parfait, plum slim salad, and veal loaf are given.

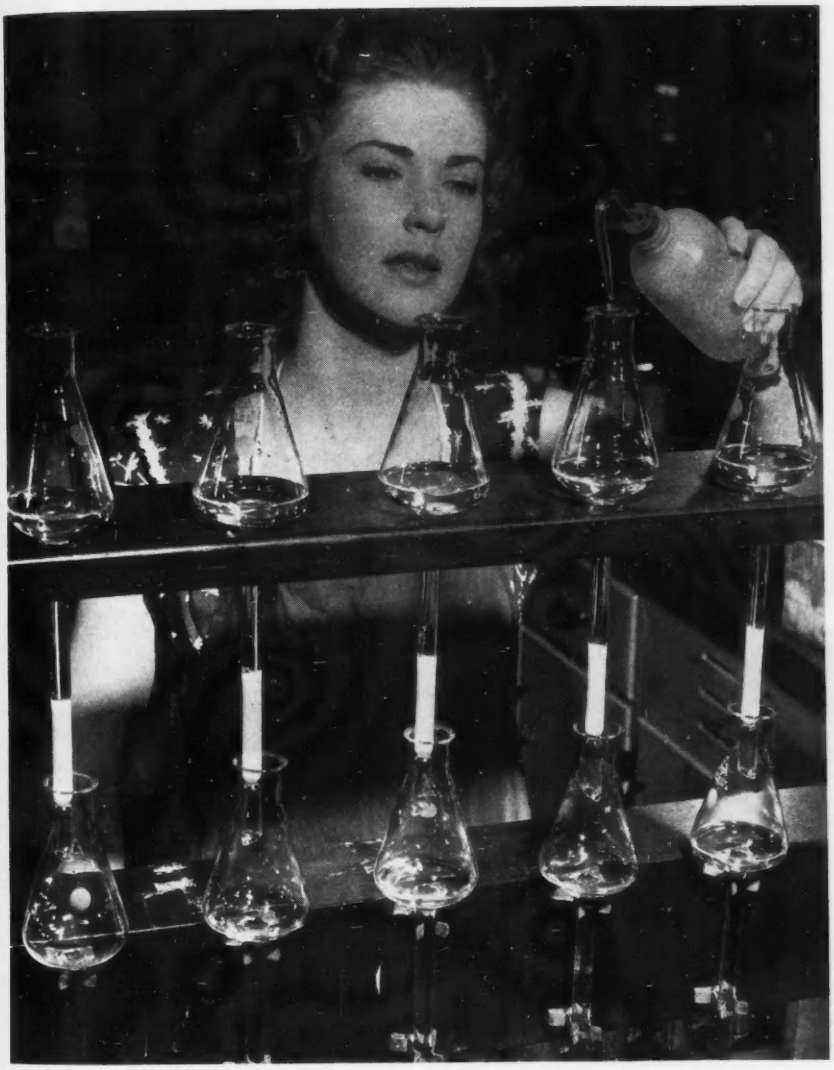
Handling, Cooking, and Serving Hamburger. Success with hamburger depends on the meat used, how it is ground, the type and ratio of fat, handling, the method of cooking, and the way it is served. The most costly beef does not necessarily make the best hamburger. It may contain too much fat. Also, the costly cuts of beef which are highly prized for steak lack the flavor necessary for good hamburger. Top sirloin, top round, and chuck are better for this purpose. The amount of fat in hamburger influences cost and cooking shrinkage as well as the moistness and flavor of the finished product. While 10 to 15 per cent fat is generally recommended for good eating quality, lower or higher ratios are often used. Hamburger with a high percentage of fat suffers a great deal of shrinkage during cooking. The fineness of the grind and the number of times the meat is ground affect hamburger quality. A coarse, single grind makes juicy fluffy-textured hamburgers. Second grindings make closer patties, tender and moist but more compact. The sooner hamburger is cooked after it is ground, the better. It is extremely perishable and deteriorates rapidly at room temperature. Chopped meat should not be kept in the refrigerator for more than a day. If it must be kept longer, it should be frozen. The less handling hamburger gets, the juicier and more tender it will be. For best results, handle it as lightly—and as little—as possible. Hamburgers may be broiled, grilled on a griddle, or pan-broiled on top of the stove. Do not overcook, as that dries out the meat. Salt should be added after cooking. For variety, try using cheeses and various sauces, such as barbecue sauce, Bearnaise, a wine sauce, and so on, to add interest to the menu.

Salads. Almost unlimited possibilities for variety leave no excuse for dull salads. Different shapes of vegetables—whole, cut, sliced, diced, julienne, and so on—provide ready-made changes. Flavor, color, and texture must be considered in designing salad arrangements. Be sure salads have something for "crunch." A canned vegetable checklist is presented, as well as six vegetable salad recipes.

Key to Controlled Production. The author believes that, in hospital food service, the selective menu is the key to controlled production. The patient on a regular diet chooses his menu for the following day. These choices are quickly tabulated by machine and the dietitian soon knows what quantities of every item to prepare. This

View From The Mountain

a new, dramatic film on dietetics as a career



A scene showing an aspect of college preparation in dietetics

Produced under the supervision of ***The American Dietetic Association***

•

Presented by ***H. J. Heinz Company*** in the interest of the dietetic profession

•

16 mm, color, sound
Running time: 22 minutes, 42 seconds

Susan Carr, a dietetic intern, faces a crisis in her young life and reaches an important decision when she gains a perspective of her problem from the solitary height of her mountain top—the roof garden of the skyscraper hospital where she is interning.

This film is an authentic, noncommercial combination of plot and documentary formats. Scenes were taken on a university campus and in a dietetic internship.

Prints of ***View From The Mountain*** may be purchased for $125. Order directly from The American Dietetic Association, 620 North Michigan Avenue, Chicago 11, Illinois.

Loan prints may be obtained through Modern Talking Picture Service, Inc. Write to The American Dietetic Association headquarters for a list of the regional offices of MTPS.

There is no rental charge for the film. Only payment of round-trip postage is required.

results in savings by reducing overproduction of unwanted items to a minimum. With built-in controls, the system is as economical as the one-entrée, non-selective menu. This system is also beneficial to the patient. It allows him to feel that he is actively taking a part in helping himself to get well.

WHAT'S NEW IN HOME ECONOMICS

Vol. 22, September, 1958

*Heat transfer as applied to surface cooking.—p. 13.

*Modern ways with fresh fruits.—p. 96.

*Modern ways with canned fruits and frozen fruits.—p. 98.

*Modern ways with fruit juices.—p. 100.

*Modern ways with dried fruits and candied fruits.—p. 101.

Heat Transfer in Surface Cooking. In surface cooking, there are three methods by which heat is transferred from the surface unit or burner to the food being cooked: convection, conduction, and radiation. Convection occurs when heat is applied to the lower part of the fluid in a saucepan. The heated portion expands, its density is decreased, and the colder, heavier air or liquid forces the warmer portions to rise. As the hot and cold molecules intermingle, the temperature of the liquid tends to become uniform. Conduction takes place from the saucepan on top of the range to the food and also from one part of a solid food to another. Radiation is the transfer of heat through the air. Materials used for cooking in water may be porcelain enamelware, glass, both light and heavy stamped aluminum, cast aluminum, porcelain-clad cast aluminum, copper-clad stainless steel, stainless steel with core metals, or cast iron. Utensils used for frying, braising, and nearly waterless cooking should be made of materials which distribute heat evenly and are heavy enough not to warp.

Fresh Fruits. Fresh fruit can be used in interesting ways at any meal. Fruit for breakfast is an established custom. At lunch, it may be used in the main course, as an accompaniment, or as dessert. At dinner, it may be used in soup, salad, accompaniment, or dessert. Because fruits are relatively low in calories and high in vitamin and mineral content, they are excellent snack foods. Increasingly frequent is the use of fruit in a decorative way, as a centerpiece which may be enjoyed visually and then eaten. Suggestions for new ways to serve apples, bananas, berries, citrus fruits, melons, pears, and other fruits are presented.

Canned and Frozen Fruits. New methods of preparing fruits for canning and new combinations of fruits in cans are indicative of modern ways with canned fruits. These new developments stimulate the creation of many new dishes and interesting new combinations of fruits. Canned fruits are practically instant pie fillings and pudding bases. Hot fruit may be served as an accompaniment with a main course. Frozen fruits, unknown a few years ago, are today an accepted part of everyday meals. It should be remembered that when frozen fruits are served as they come from the package, they are at their flavorful best just as they are completely thawed. It should be managed that a few ice crystals remain in the fruit when it is served. Popular today is the serving of frozen fruit with a topping of sour cream and brown sugar. Homemade frozen desserts are now a year-round possibility.

Fruit Juices. Fruit juices are now available fresh, frozen, frozen concentrated, canned, bottled, plain or blended, sweetened or unsweetened. They are popular at breakfast, of course, but may be used at any meal or in a punch. Fruit juices add an interesting touch to recipes, as in prune bread, for example, where prune juice is the liquid ingredient.

Dried and Candied Fruits. Today's ways with dried or low-moisture fruits are ways of convenience. These fruits, which are good sources of quick energy and rich in important vitamins and minerals, can be eaten as they come from the package, incorporated into recipes in their original form, or simply and easily prepared in cooked form. Candied fruits are usually colorful and therefore make attractive garnishes.

Embroidered emblems, green on white, bearing the seal of The American Dietetic Association, are available to members and to dietetic interns at the following prices:

Seal **30c**

Tab* **20c**

(*) Please specify *Dietitian* or *Dietetic Intern*

Please make remittance payable to:

THE AMERICAN DIETETIC ASSOCIATION

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Real Idahos... less than 2½¢ a serving!

Now you can serve top-quality potatoes—Heinz *Instant* Potatoes—at less than the labor cost *alone* on mashed potatoes prepared the old-fashioned way.

- **You just add** Heinz *Instant* Potatoes to hot water for the whitest, fluffiest, Idaho-tastiest mashed potatoes *ever*—served in three minutes flat!
- **You get** Heinz uniform quality year-round. No local price problems, no storage or spoilage problems. And Heinz *Instant* Potatoes save money as a thickener in soups, hashes, croquettes.
- **Test their goodness** at our expense. The coupon below gets you a generous free sample.

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New Heinz Instant Potatoes!

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You bet I'd like to try Heinz Instant Potatoes. Send my free sample immediately.

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Additives Legislation. On September 6, President Eisenhower signed into law a bill requiring that the safety of chemicals used in processing food must be proved by industry before they can be sold for use in foods. Heretofore, it has been necessary for the government to prove a chemical unsafe after a food item was already on the market and then to institute court action to remove it from the market.

Under the new law, the manufacturer or promoter of a new food additive must test it for safety on animals and submit the results to the Food and Drug Administration. If the FDA is satisfied as to the safety of the additive, it will issue a regulation specifying the amount which may be used, the foods in which it may be used, and any other necessary conditions of use. If safety of the additive is not established in the opinion of the FDA, its use will be prohibited.

The law also forbids the use of any additive that would promote customer deception or otherwise result in adulteration or misbranding within the meaning of the federal Food, Drug, and Cosmetic Act.

With respect to additives commonly used in food before January 1, 1958, experience based on such use may be taken into account in determining safety. Thus, such common additives as salt, sugar, vinegar, and many others, will be exempt. For others which may not be generally recognized by experts as safe, industry will be allowed eighteen months to present necessary data proving safety.

Food and Nutrition Board Booklets. Two new publications from the Food and Nutrition Board of the National Research Council will be of interest to dietitians.

The first, *Cereal Enrichment in Perspective, 1958* is a twenty-two-page report prepared by the Committee on Cereals. A run-down of the contents shows that enrichment of wheat bread and flour, corn products, macaroni products, and rice are considered, as well as enrichment experiences in other countries. A special section details the benefits of enrichment in the U.S. and those demonstrated in the Newfoundland study of a few years back.

The second publication is a leaflet, "Dietary Fat and Human Health," in which excerpts are reprinted from the more detailed report, *The Role of Dietary Fat in Human Nutrition* published earlier this year. The section headings in the leaflet include: "The Importance of Fat," "How Much Fat Is Needed?" "Amount and Type of Fat in the American Diet," and "Amount of Fat and Incidence of Cardiovascular Disease."

Both publications may be ordered from the National Academy of Sciences—National Research Council, 2101 Constitution Avenue, Washington 25, D.C.

Nutrition Symposium. On October 13 and 14, the H. J. Heinz Company sponsored a symposium on "Advances in Human Nutrition" in Pittsburgh. The symposium was presented as part of a week-long series of ceremonies dedicating the new Heinz Research Center. Speakers included: Dr. Charles Glen King, Dr. Alexander Marble, Dr. Henry Sebrell, Dr. Nevin Scrimshaw, Dr. Fredrick J. Stare, and Dr. James Hundley.

A special feature of the symposium was a panel discussion on nutrition, both popular and professional, led by Dr. E. Neige Todhunter, former President of A.D.A. Other topics for reports were: relationship between nutrition and degenerative diseases of middle and old age, maternal and child nutrition, nutritional treatment of children afflicted with inherited metabolic disorders, basic biochemical and nutritional research, and international aspects of malnutrition.

Health in the Americas. At the XV Pan American Sanitary Conference held in Puerto Rico, September 21 through October 6, a report in book form, *Summary of Four-Year Reports on Health Conditions in the Americas*, showed that many killing and disabling diseases that have cursed the American continent since the dawn of history are now in retreat, and a number are actually "on the way out." Detailed information made available by each country and territory is presented in tables and accompanying text.

A highlight of the report concerns vital statistics. Communicable disease is shown to be the main cause of death for all ages, but especially in childhood. Mortality in early childhood (one to four years) varies all the way from 1.1 to 42.7 per thousand in different countries in the Americas. A major factor in this child mortality is shown to be malnutrition. The report therefore points to the need for national and local health services to develop stronger maternal and child health programs and to place greater emphasis on improvement in nutrition.

Bulletin on Using Dry Milk in Quantity Recipes. Recommendations for adapting your own quantity recipes to the use of dry milk, either whole or nonfat, have been drawn up by the Quantity Food Research Laboratory at Michigan State University and published in a new bulletin, *A New Milky Way—Whole and Nonfat Dry Milk for Your Own Favorite Quantity Recipes.* In it, pointers on the performance of dry milk in quantity food preparation learned in the Laboratory are reported. Uses to which both dry whole and nonfat dry milk are especially adapted are explained, including marketing units in which they may be ordered. The following sections of the bulletin are devoted to various food groups, i.e., beverages; soups and sauces; puddings, pies, and desserts; cakes, cookies, and quickbread; yeast breads; and potatoes. Two tables on substituting nonfat dry milk and dry whole milk, with instructions on how to use the tables, are presented. In addition, these tables are available on 5 by 8 in. cards for quick reference in calculating substitutions for fluid whole milk or for posting for supervisors' and cooks' use. The bulletin, which is Michigan Agricultural Experiment Station Circular Bulletin 225, and the two substitution cards, may be obtained free of charge from: The Bulletin Room, Agricultural Hall, Michigan State University, East Lansing.

Fish Inspection and Grading. Responsibility for inspection and grading services for fishery products was recently turned over to the Department of the Interior by the U.S.D.A. These services are now available on a fee basis to processors who meet existing voluntary federal standards of quality for fishery products. The standards are devised by the Bureau of Commercial Fisheries, U.S. Fish and Wildlife Service. The transfer was made in accordance with the Fish and Wildlife Act of 1956.

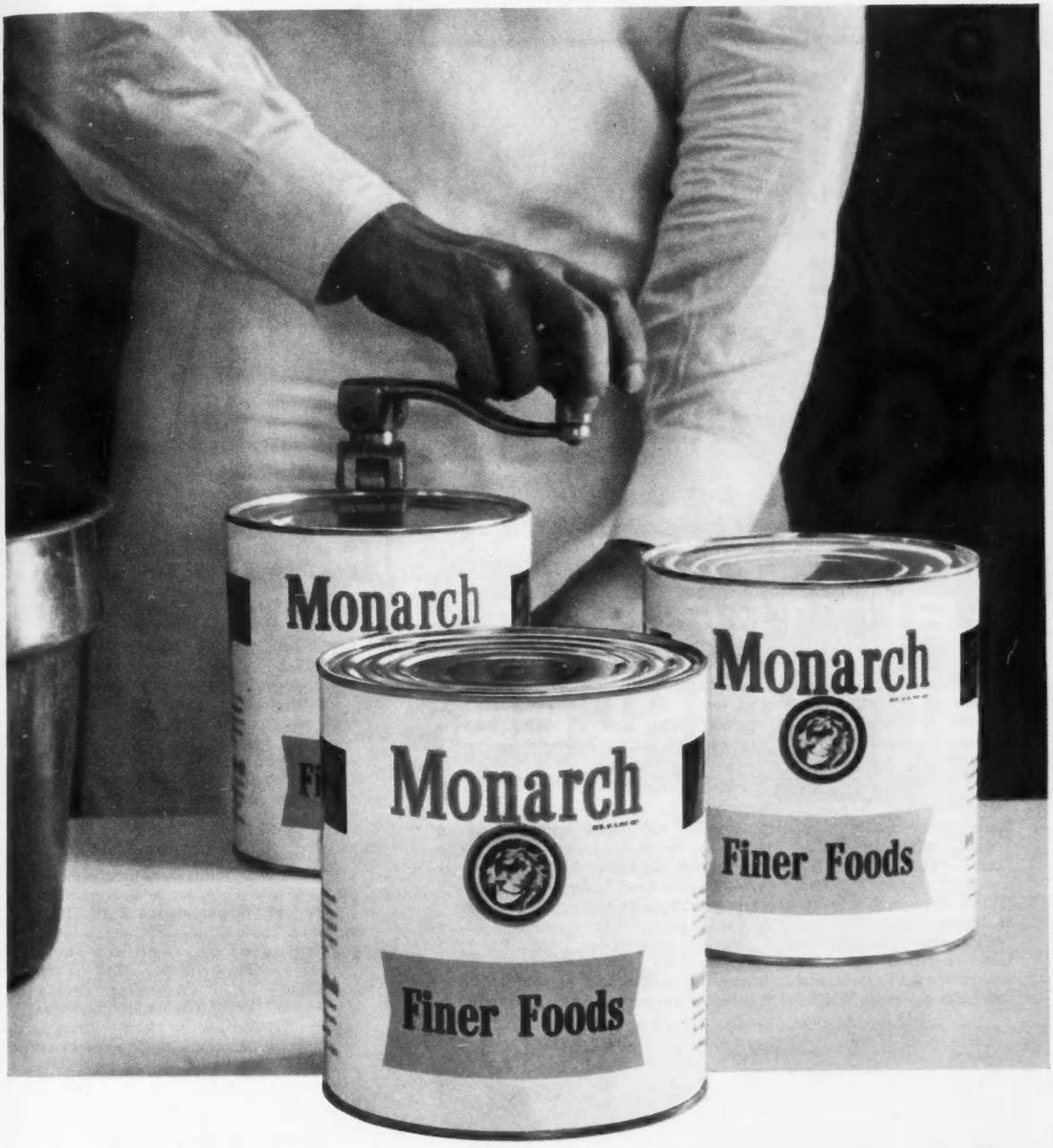
Plentiful Foods MONTHLY LIST

The following foods will be in plentiful supply during November, according to the U.S.D.A.:

Protein foods
Chickens—broilers and fryers
Eggs—small and medium
Peanut butter
Pork
Turkeys
Other foods
Apples
Berries—frozen and canned
Cabbage
Cranberries
Dates
Honey
Potatoes
Ripe olives, canned
Vegetable fats and oils
Walnuts

Frozen Foods for November. Recommendations for frozen foods appropriate for the month of November by the National Association of Frozen Food Packers are listed as follows:

Frozen fruits and juices (available in 30-lb. cans or smaller)
Apples—for apple cobbler
Apricots—to whet breakfast appe-



This label promises more than good eating!

QUALITY: Maintaining a 105 year reputation for finer foods, with rigid quality controls checked at each of MONARCH's 30 processing plants.

SERVICE: Prompt and accurate delivery from 22 distribution warehouses, plus a national network of special institutional distributors — enables MONARCH to supply even the largest of organizations operating establishments from coast to coast.

VARIETY: Choose from more than 500 items. Your MONARCH institutional salesman can handle all your canned food needs in just one call.

PRICE: MONARCH FOODS cost no more than ordinary brands.

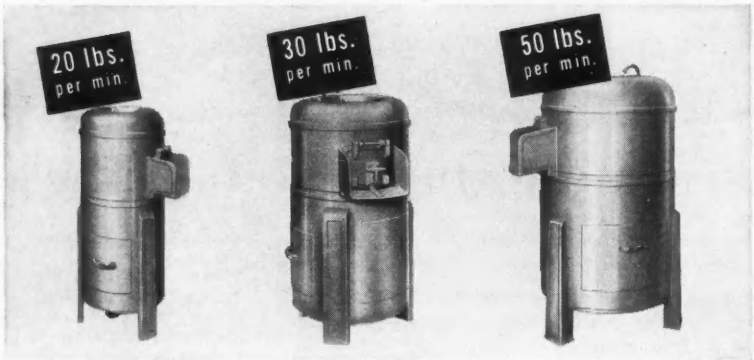
MONARCH FOODS, Canners and Processors, INSTITUTIONAL PRODUCTS DIVISION, Chicago (River Grove), Minneapolis, Los Angeles, San Francisco, Jacksonville, Houston, Boston (Somerville), Baltimore, Cumberland, Roanoke, Cleveland, Columbus, Canton, Akron, Denver, Marshalltown, Iowa.

Monarch for over a Century... the King of finer foods

BUT FELMLEY, DON'T YOU THINK A BLAKESLEE PEELER WOULD BE MORE PRACTICAL?

BETTER BUY BLAKESLEE

Speed up production and save on costly man hours with a Blakeslee "No Gear" Peeler. By removing only the thin outer skin, Blakeslee Peelers make possible a 20% saving in potatoes and vegetables, as compared to hand peeling... with more food value and flavor retained. Designed with an abrasive side wall in the peeling chamber, as well as an abrasive peeling disc, it provides faster, more efficient peeling and eliminates what is commonly known as "flats". The "No Gear" design assures quiet operation and does away with expensive, inconvenient gear replacement. Streamlined throughout permits easy and thorough cleaning. Write for complete information and specifications.



Blakeslee also manufactures quality Dish and Glass Washers, and Food Mixers for every size of operation.

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tites; also as eye-catchers for dessert for low-calorie diets
Boysenberries—for use in two-crust pies
Peaches—broiled with ham or poultry
Strawberries—for chiffon pies and sundaes

Frozen vegetables

Green peas (available in large containers up to 50 lb.; others 2½ lb.)—especially appealing when cooked in small batches; bright green color makes them attractive in many combinations
Potato products (available in 30-lb. containers and smaller)—convenient way to increase variety of potato choices on menu; can be promoted for substantial breakfasts
Spinach (available in 4- and 5-lb. packages and smaller)—top with poached eggs for luncheon entrée; excellent as dinner vegetable.

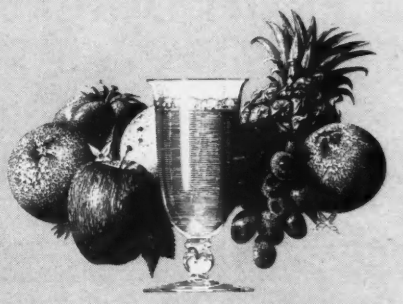
Publications of Interest. From the New York offices of J. Walter Thompson Co., advertising agency (420 Lexington Avenue) are coming several useful and worth while publications for home economists. "Writing Recipes," which has been prepared by the company's Home Economics Section, describes the five basic patterns for writing recipes and gives examples of each, using a Parker House roll recipe.

Another JWT publication is a periodical release titled *Skilled Techniques in Guiding Group Action.* The spring 1958 issue, which we have before us, is devoted to "Creative Use of Visual Materials" and contains a number of concise articles on this topic, such as: "Reflections on Design of Visual Training Aids" by Dr. Leonard C. Mead, Dean, Graduate Schools of Arts and Sciences and Chairman, Psychology Department, Tufts University; "Use of the Flannel Board" by Henrietta Fleck, Chairman, Home Economics Department, New York University; and "Applying Design Principles" (which includes diagrammatic illustrations showing methods of focusing attention on one object or group of objects in an exhibit). The next issue is scheduled to include ideas on home economics recruitment, expanded home economics curriculums, and selection and use of up-to-date home economics textbooks. Its general title has been announced as: "Helping to Keep Home Economics Standards High."

Interns Graduate. On August 26, seven dietetic interns were honored at graduation ceremonies at the *University of Oklahoma Medical Center,* Oklahoma City. Dr. Mark R. Everett, Dean and Director of the Medical School, addressed the graduates and presented certificates and Medical Center pins to the interns. Mary C. Zahasky, Director of the Internship, also spoke to the group and assisted Dean Everett with the presentations. The graduates are:

Norma McGee Jones, Oklahoma

WHY SHOULD THE VITAMIN C CONTENT OF FRUIT AND VEGETABLE JUICES BE STANDARDIZED?



Because nutrition reports disclose that —

- **Vitamin C deficiencies exist throughout the country***
- **Scurvy has not disappeared from the United States***

Proof of deficiencies among adults and children. You should know these facts!* Diet surveys from Maine and Vermont, New York, Illinois, New Mexico, Oregon, West Virginia, and Texas show a definite pattern of inadequate vitamin C intake. These studies covered grade school and high school children, college men and women.

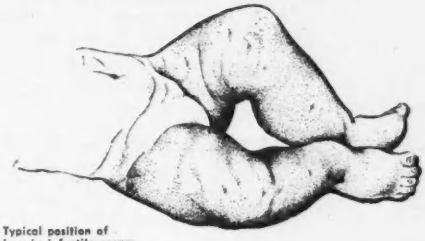
Spongy, swollen gums symptomatic of scurvy.

From these studies* of dietary habits and physical conditions there is considerable proof that many of the children and adults covered by survey have actual, physical symptoms of vitamin C deficiency.

Infantile scurvy. Scurvy* occurs, even today, among infants who are artificially fed. Fortunately the disease may be cured by the administration of vitamin C. How much more sensible it is to prevent it by supplying these bottle-fed infants with the daily allowance of 30 milligrams of vitamin C as recommended by the Food and Nutrition Board of the National Research Council for children under one year of age.

Symptoms of infantile scurvy are fretfulness and fear of being touched.

These bottle-fed infants, unless receiving a pediatric prescription containing vitamin C, are largely dependent on supplemental ascorbic acid which they receive from fruit or vegetable juices. Unless fortified with vitamin C many of the processed juices may not supply these babies with adequate quantities of this essential element.



Typical position of legs in infantile scurvy.

What can be done? Because of the increasing evidence that American diets are deficient in vitamin C, leading nutrition experts believe that processed fruit and vegetable juices, on which the public is so reliant for its supply of this necessary vitamin, should contain the "Vital Ingredient."

The Vital Ingredient of any processed fruit or vegetable juice is a *dependable* and *adequate* supply of vitamin C. You can give your juice this ingredient by *standardizing its vitamin C content*. The processing is simple and the new low cost of ascorbic acid makes juice standardization more attractive than ever.

With ascorbic acid available *by the tons* at extremely modest cost fruit and vegetable juices can have a standardized vitamin C content for the better protection of the nation's health and well-being.

*Statements are based on documented reports. References on request.

Illustrations after photographs in The Vitamins in Medicine by Bicknell and Prescott, Third Edition, published by Grune & Stratton, Inc., New York.

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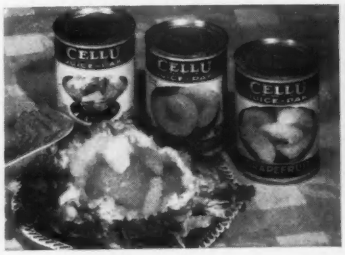
CELLU JUICE-PAK FRUITS *and* FRUIT JUICES



For good eating, choose CELLU JUICE-PAK FRUITS—lush, full ripened and packed only in natural flavor, unsweetened and undiluted juice. In addition to wonderful flavor, you get ⅓ more fruit substance (extra minerals and vitamins) for just a few pennies more per can.

CELLU FRUIT JUICES are delicious being the full bodied, undiluted and unsweetened natural juices expressed from fine quality ripened fruit. They find favor as a breakfast treat, as appetizers or in desserts and molded salads at any time.

CELLU dietetic foods

For helpful diet information, recipes and tables on food ask for the CELLU catalog.

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This is a project of the Diet Therapy Section of The American Dietetic Association.

Single copy 50¢

Five copies $2.00
Ten copies 3.75

Order from:

THE AMERICAN DIETETIC ASSOCIATION
620 North Michigan Avenue
Chicago 11, Illinois

A. and M. College, Stillwater
Anne Carolyn Lawlor, Framingham (Mass.) State Teachers College
Nancy Lou Moore, University of Tennessee, Knoxville
Bente Morch, University of California at Los Angeles (originally from Denmark)
Mary Frances Ojeda, Georgia State College for Women, Milledgeville
La Nora Felicitas Ohmacht, Clarke College, Dubuque, Iowa
Amy Ann Scott, University of Missouri, Columbia

In Columbus, Ohio, a dinner was held on September 11 for graduating dietetic interns of *The Ohio State University Hospital.* Lt. Col. Helen Davis, Chief of Army dietitians, Surgeon General's Office, U.S. Army, Washington, was the guest speaker. Certificates were presented to the graduates by Dr. George Hamwi, Chief, Division of Endocrinology and Metabolism, and Grace L. Stumpf, Director of Dietetics. The graduates are:

Lucille Bennion, Brigham Young University, Provo, Utah
Margaret Brown, The Ohio State University, Columbus
Joan Carle, University of New Hampshire, Durham
Joan Harvey, Madison College, Harrisonburg, Virginia
Margaret Kassouny, The Ohio State University, Columbus
Lilly Panella, Simmons College, Boston
Norma Rosqueta, Texas State College for Women, Denton
Charlotte Stewart, University of Wisconsin, Madison
Nancy Ann Bailey Townley, The Ohio State University, Columbus

Four dietetic interns completed their work at *Tuskegee Institute,* Alabama, on September 12. Certificates and A.D.A. pins were presented by Solona C. McDonal, Director of Hospital Dietetics, to the following graduates:

Julia Ayodele Dosumn-Johnson, Spelman College, Atlanta, and Monrovia, West Africa
Sylvia Hall Franklin, Tuskegee Institute, Alabama
Shirlee R. Patterson, Tuskegee Institute, Alabama
Laverne I. Stone, Tuskegee Institute, Alabama

Maple Syrup Recipes. Small quantity recipes using maple syrup developed by the New Hampshire Agricultural Experiment Station have been issued in booklet form, titled "New Hampshire Maple Syrup—Its Care and Use." Included are such tempters as maple chiffon pudding, maple syrup frosting, maple syrup gingerbread, maple walnut pie, maple pumpkin or squash pie, and maple syrup fudge. Special information includes data on maple syrup grades, proportions to use when substituting for sugar, and instructions

Hormones control blood and tissue levels of fats and related substances such as cholesterol . . . rate at which these are synthesized and destroyed . . . and manner in which they are utilized for body functioning. Fat metabolism is influenced by secretions of the pituitary, thyroid, adrenals, ovaries, testes and pancreas, and by action of liver and possibly kidneys.

Diseases of the endocrine glands may lead to serious disturbance of metabolism . . . of fats as well as carbohydrates and proteins. In diabetes, blood serum levels of cholesterol and other lipids are high . . . and can be changed by administration of insulin. In hypothyroidism, there is a tendency for fat to accumulate in body tissues and for serum cholesterol levels to be high. Administration of thyroxin stimulates an increase in metabolism . . . tends to lower serum cholesterol . . . and increases mobilization and oxidation of fat from body tissues.

The "master gland" . . . the pituitary . . . influences fat metabolism directly and indirectly . . . through stimulation of other glands. ACTH appears to inhibit fat synthesis and to lower serum cholesterol levels . . . probably by stimulating production of cortisone and other adrenal hormones. The "growth hormone" and "sex hormones" tend to decrease amount of fat synthesized by increasing energy utilization. Certain types of damage to the area of the hypothalamus lead to excessive storage of fat.

The specific roles of hormones . . . individually and in balance with each other . . . are not clearly understood. However, their importance as "chemical regulators" in determining how the body handles fats . . . the proportion burned for energy . . . and the amount stored . . . is firmly established.

Fat, as present in foods and used in meal preparation, contributes to the pleasure of eating . . . with capacity for utilization under control of body hormones.

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

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for preserving maple flavor. This small booklet is being distributed free by the Bureau of Markets, New Hampshire Department of Agriculture, Concord.

Poultry Use in U.S. In nine out of ten homes in the U.S., broiler-fryer chickens are served, with the highest use being in the South (98 per cent) and lowest in the Northeast (88 per cent). About half of the homemakers contacted in a 1956 U.S.D.A. survey estimated that their families eat chicken at least once a week; most said they served it on both Sundays and weekdays, although one family in ten reserved chicken for Sunday dinner.

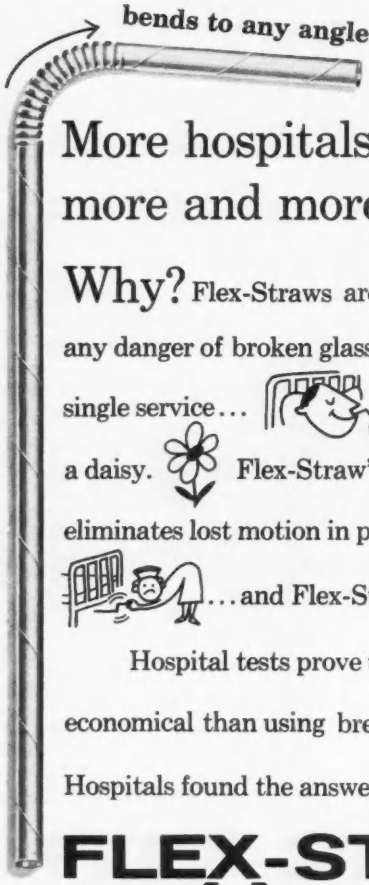
Almost half of the homemakers reported having chicken for picnics, but only one-tenth had cooked chicken outdoors during the year. The most common method of cooking was frying, and one-third of the homemakers indicated this was the only way they cooked it. About half the women had used stewing and roasting chickens in the past year, and about one in ten had served duck. Frozen chicken and turkey pies or dinners had been served by about half the homemakers. Turkey was used in about two-thirds of the households contacted, chiefly at the holidays, but it was served in one-fourth of the homes at other times.

This survey is reported in a new U.S.D.A. publication, *Consumer Preferences, Usages, and Buying Practices for Poultry and Poultry Products* (Marketing Research Report No. 252), single copies of which are available on request from the U.S.D.A.'s Office of Information, Washington 25.

Consumers' Apple Buying. In Salt Lake City, the Utah Agricultural Experiment Station conducted a survey to learn the size-preference for apples of food buyers in super markets. It was learned that big apples were preferred for holiday use. For example, over half of the sales during the three days before Thanksgiving were extra-large size compared with 17 per cent during a regular week.

Shoppers preferred 3-in. apples to 2½-in. size, except when the price of the smaller apples was 4 cents less per pound. Then, the smaller apples sold at about the same rate as the large. When the price of small apples was reduced to about half that of larger apples, there was a large sales increase in this size, which the investigators felt was due to "stocking up" while prices were down.

Medium- and low-income shoppers preferred the large apples while high-income shoppers divided their purchases between the two sizes.



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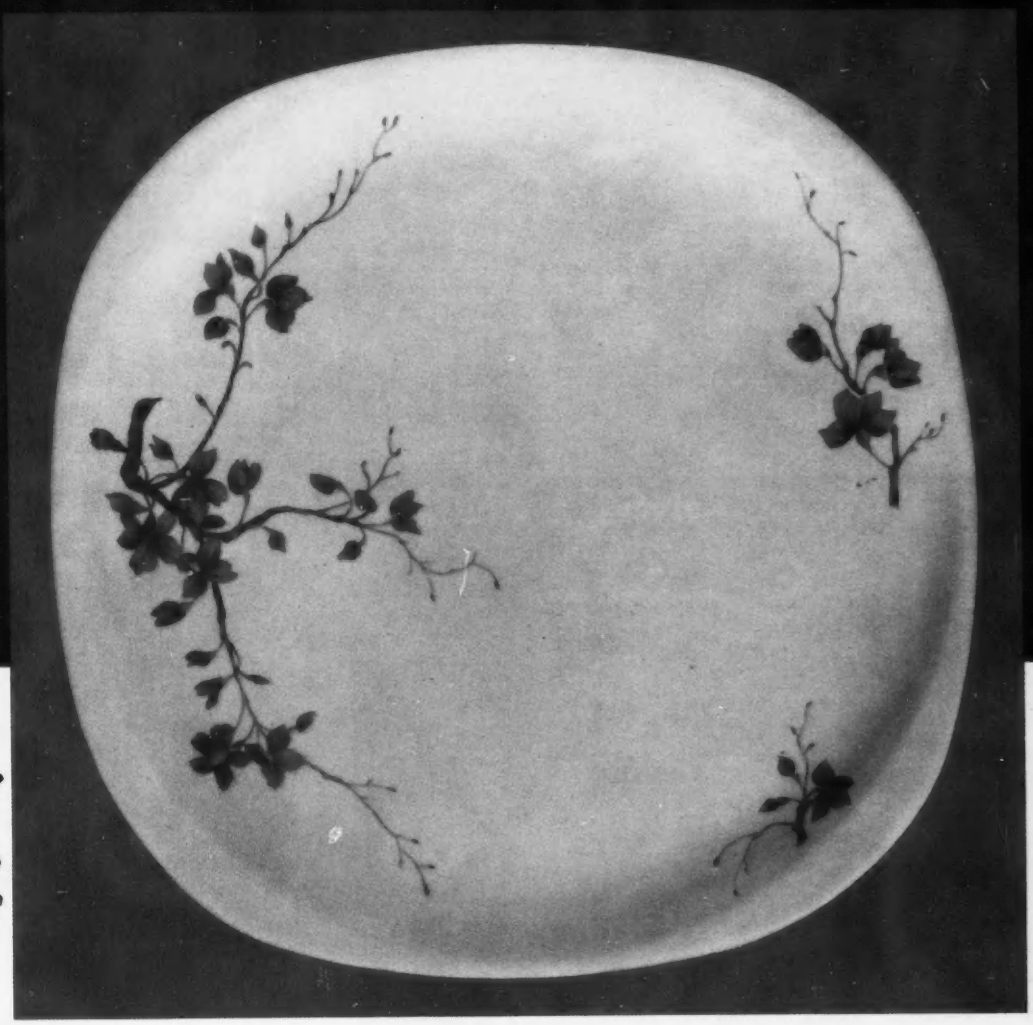
News of State Associations

California Dietetic Association. "Food Comes First," an exhibit shown at the California State Fair in Sacramento in September, was manned by members of the Bay Area and Sacramento Regions. The University of California Agricultural Extension Service and the California Food Conferences were joint sponsors of this exhibit. Each day, seven demonstrations and four skits were presented. The skits were written by nutritionists of the California Dietetic and Home Economics Associations, the California Department of Public Health, and the University of California Extension Service. A daily food guide, prepared by the nutritionists, was distributed to the audience.

In *Los Angeles*, the first of a series of training workshops for workers on the supervisory level was given in September at the University of California Home Economics Building. Joint sponsor, with the University's Extension Department of Continuing Education in Medicine and Health Sciences, was the California Dietetic Association. The program included discussions of menu planning, purchasing, food cost control, personnel management, and some field trips.

As a public relations project, *Los Angeles Region* dietitians are contributing articles to *Hospital Forum Magazine*, published by the Southern California Hospital Council.

To meet special needs . . .



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Georgia Dietetic Association. The fall meeting of the Georgia Dietetic Association will be held November 12 in Atlanta, with the keynote of the meeting being "Public Relations." Speakers on this subject will be: Dr. W. A. Early, Superintendent of Education, Savannah, and E. J. Forio, Vice-President, Coca-Cola Company, Atlanta. A third speaker, Dr. L. B. Raisty, Vice-President, Federal Reserve Bank, Atlanta, will discuss the business outlook. Reports of the A.D.A. meeting in Philadelphia will be given by the Georgia delegate.

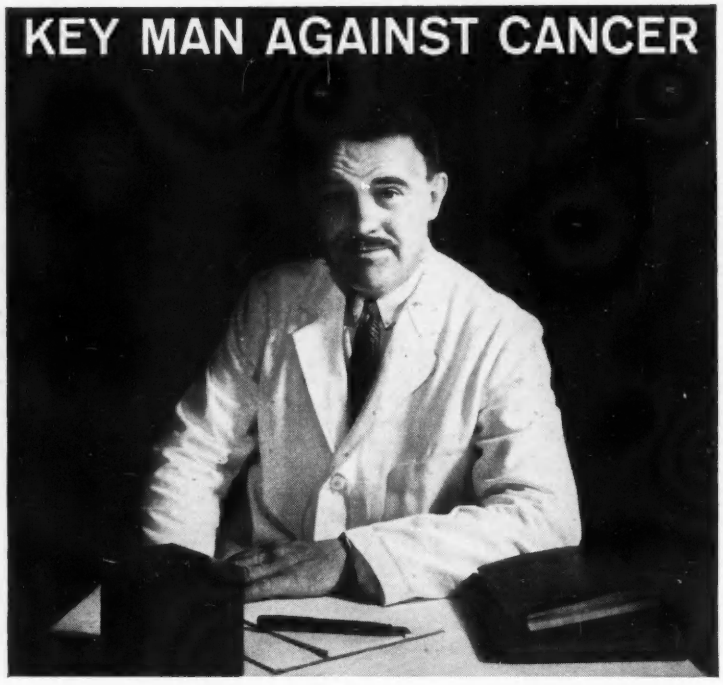
New Jersey Dietetic Association. On October 1 and 2, the Joint Committee of the New Jersey Dietetic Association and the New Jersey State League of Nursing presented an exhibit at the convention of the State League of Nursing.

The Diet Therapy Committee of the New Jersey Dietetic Association, together with a Committee of the Essex County Medical Society and the state nutritionist, are preparing a diet manual which may be used in any hospital in the state.

The *Middle Jersey Dietetic Association* will meet on November 17 in Lyons to hear a discussion on mass feeding by Mr. and Mrs. George Page, representatives of the state Civil Defense Program.

On October 1, the *Northern New Jersey Dietetic Association* held its first meeting of the year in East Orange. Joseph A. Moore, Public Relations Director of the East Orange General Hospital, spoke on "Public Relations Is Common Sense."

New York State Dietetic Association. At the Health Show sponsored by the New York City Health Department and held at the Coliseum August 6 to 23, more than 50,000 people had an opportunity to see the A.D.A. exhibit, "Achieve Your Proper Weight." As a member of the National Health financial obligation involved in exhibat this Health Show. The request was passed on to the New York State Dietetic Association, which met the financial obligation involved in exhibiting, while thirteen members of the *Greater New York Dietetic Association*, together with nine dietetic interns from the Bronx VA Hospital, manned the exhibit at least 2 hr. a day.



YOUR OFFICE, DOCTOR, is the "cancer detection center" which we urge all adults to visit once a year, and where early diagnosis of cancer can help save many thousands of lives. It is upon you that we largely rely for the carrying out of many aspects of our education, research and service programs. As members of our Boards of Directors – on the National, Division and Unit levels – it is your thinking and your guidance which are such vital factors in creating and executing our policies and programs.

You, of course, are concerned with all the ills affecting the human body. The American Cancer Society deals specifically with cancer. But our mutual concern – the tie that binds us inextricably – is the saving of human lives. Through your efforts, we may soon say – "one out of every two cancer patients is being saved." Indeed, with your help, cancer will one day no longer be a major threat.

AMERICAN CANCER SOCIETY®

Association Activities

New National and State Officers. Become acquainted with the members of your new A.D.A. Coordinating Cabinet and Boards, as well as with the presidents of the state dietetic associations, through the officers' page which appears on page 1170 of this issue of the JOURNAL. A subsequent issue will include additional names and addresses of members of A.D.A. Boards and Committees.

Food Service Supervisors Training Course. Adelia M. Beeuwkes, University of Michigan, represented the Association on September 12 at a meeting of the Advisory Committee of the Food Service Supervisors Training Course currently being offered at Michigan State University.

Food Faddism. The American Medical Association has produced as part of its concerted educational program to alert the public to the dangers of substituting "food fads" for sound nutrition, a new film, "The Medicine Man." Cooperating with the A.M.A. in this 16 mm, 27-min. black-and-white movie are the Food and Drug Administration and the National Better Business Bureau. Depicted is a television commentator's investigation of the health food lecturer and the door-to-door salesman of food supplements who makes unwarranted claims for his product.

A 20-ft. exhibit, newly created by the A.M.A., "Nutrition Nonsense and False Claims," tells facts about food supplements and health food lecturers and emphasizes the value of sound nutrition and competent medical care.

Both the exhibit and film were shown at the A.D.A. Annual Meeting in Philadelphia last month and are available for loan to state and local

Modern Gas Equipment in the kitchen of White Memorial Hospital

For cleanliness, efficiency and economy . . . White Memorial Hospital cooks with GAS

Modern, stainless steel Gas equipment, including a built-in range, cooks more than 9,000 meals each week at White Memorial Hospital in Los Angeles, California. The hospital staff chose Gas equipment for the kitchen to provide the fast, clean and efficient cooking results the hospital requires.

Modern Gas equipment at White Memorial Hospital includes:

2 Vulcan fryers
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For information on how you get faster, more efficient food service with modern Gas equipment, call your Gas Company's commercial specialist. He'll be glad to discuss the economy and outstanding results you get with Gas and modern Gas equipment. *American Gas Association.*

LOCALIZED AIR VOLUME CONTROL

Simply set the control knob to increase or decrease exhaust air for any cooking section. Use for peak load or permanent adjustment. Provides exact room air changes.

24 HOUR FIRE CONTROL

is made possible by use of exclusive drop-link baffle. Non-electrical, it is activated when temperature reaches danger point. Instantly stops exhaust air flow!

ELIMINATE the old style, inefficient, unsightly canopy, and improve lighting, cool the kitchen, and reduce cleaning costs. Provided with top air vents, bypasses, filters and all standard features.

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Investigate today . . .

Models available for all cooking equipment: ranges, fryers, ovens, broilers, kettles and steamers; and for any layout, updraft or downdraft.

Ask your dealer or consultant to include PLEDGAIRE in your kitchen.

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dietetic associations. Details may be obtained from Division of Communications, American Medical Association, 535 North Dearborn Street, Chicago 10.

Also available from the A.M.A. are: "The Merchant of Menace," an eight-page pamphlet outlining food faddism, and the September 1958 issue of *Today's Health*, which contains an article, "Let 'Em Eat Hay," which presents a comprehensive review of food quackery and nutrition "nonsense."

Another publication of interest is a four-page flyer, "Food Facts vs. Food Fallacies," issued by the Food and Drug Administration. This folder reports misleading promotions of food supplements which violate federal law and debunks certain myths about food. Excerpts from this leaflet were published on page 257 of the March 1958 issue of this JOURNAL.

Our Association also has available (from Headquarters office) a booklet published last year, *Food Facts Talk Back*, which spotlights 120 fallacies about food and refutes each with facts. Copies are available at the following prices

1 copy	$ .50
5 copies	2.25
10 copies	4.00
50 copies	17.50
100 copies	30.00

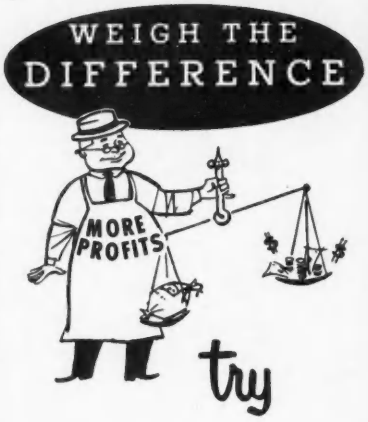
(F.O.B. Chicago)

Obituary

Rose Richter. The A.D.A. office has received word of the death in July of Rose Richter of Dallas. Miss Richter had lived most of her working life in Texas, having served on the staffs at Baylor University Hospital, Dallas; Methodist Hospital, Fort Worth; Methodist Hospital, Dallas; Bradford Memorial Hospital for Babies, Dallas; and Flow Memorial Hospital, Denton. Miss Richter had been an A.D.A. member since 1926 and was a charter member of the Dallas and Texas Dietetic Associations.

News of Products and Services

Jell-O chiffon pie fillings, developed specifically for the food service industry, are now being marketed in lemon and strawberry flavors by the Institutional Products Division of *General Foods*. Packed in a No. 2 can with a net weight of 1 lb. 1-1/2 oz., each can produces enough filling for nine pies at a food cost of 2 cents per serving when served plain or less than 4 cents when served with strawberries or pineapple. The filling can be made in 5 min., only sugar, water, and whipping being needed to make the finished product. Many variations



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- More Profits. High cooking yield.
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- Delicious mild flavor.

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You Get More!

The original mild *flavor* is yours in SENATE BRAND'S modern vacuum pack Ready for the chef High yield and close trim gives you extra servings at lower unit cost. Insist on SENATE BRAND—your guarantee for satisfied customers and more profit per pound.

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IF YOU USE 5 GALLONS OF MILK A DAY...

YOU CAN SAVE $800 A YEAR!*

NEW PET® INSTANT

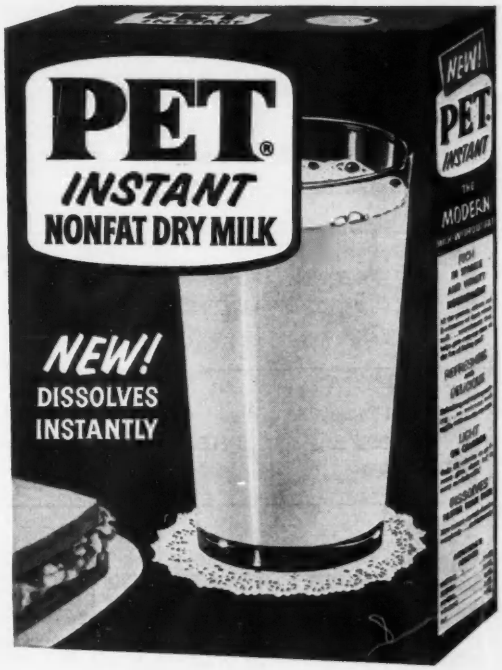
perfect for all cooking and baking—costs only 40% as much as fresh milk!

Figure it out for yourself . . . if you use 5 gallons of milk every day for cooking and baking, you save approximately 45¢ a gallon, or $2.25 a day by using PET *Instant* Nonfat Dry Milk. At the end of a year your savings have zoomed to $821.25!

PET *Instant* can be used in any recipe calling for milk—from soups to desserts. The flavor and texture remain the same and so does the milk nourishment —except for the fat. PET *Instant* is convenient, too ... keeps in dry form right on your storeroom shelf . . . mixes instantly in whatever amount you need, from a cupful to five gallons.

Try PET *Instant* in any recipe you're now using. You'll be amazed at its performance . . . delighted at your savings!

***Based on bulk milk prices of 75¢ per gallon.**



CHOOSE FROM THESE CONVENIENT SIZES:

5-GAL. • 12-QT. • 4-QT.

ALSO AVAILABLE IN 50-LB. BAGS

"PET"—Reg. U. S. Pat. Off. Copr., 1958, Pet Milk Co.

from the basic strawberry and lemon chiffon pies have been developed by the General Foods kitchens, including strawberry swirl chiffon pie, ambrosia chiffon, apricot, lime, nesselrode, peach, cherry, prune whip, and orange.

Pillsbury recently changed its name, dropping the word "Mills." It is now *The Pillsburg Company*. The change was made at the annual stockholders meeting in September so that the name would be more appropriate to the company's broad plans for greater product diversification and increased expenditures for research and expansion. In the last ten years, Pillsbury has added 125 new products in the consumer, bakery, institutional, and formula feed fields, and the company is currently marketing 211 different products, excluding specialized flour brands developed for the bakery industry and the export trade. Paul S. Gerot, President, announced at the meeting that at least twenty-five new products are being readied for introduction during the coming year.

A new addition to the *Meals-on-Wheels System* is the new MR-20BA model which features a beverage service similar to a coffee maker. A built-in "hot shelf" mounted at the rear of the delivery unit's counter top accommodates two or three 6.3-qt. submersible beverage dispensers, Each insulated dispenser is heated individually with a thermostatically controlled electric heating element in the shelf to maintain correct temperatures for a considerable time after being unplugged. The new unit is manufactured according to standards of the National Sanitation Foundation and is especially designed for easy cleaning. The removable dispensers contain no electrical elements and require no special handling in washing; they can be immersed without damage.

All members of the food service industry in the U.S. and Canada are eligible to enter *Ac'cent-International's* $5000 "Food Service Idea" contest, which will run until January 15, 1959. Top prize will be $1000, with seventy-two other prizes ranging from $500 each down to $25. Each contestant may submit as many entries as he wishes, but each must include a different food service idea. All contestants will later receive a booklet containing the top ideas submitted.

From the kitchens of *S. Gumpert Co., Inc.*, now come Icing and Filling Fruits. The product, which is a special combination of heavily condensed fruits plus concentrated flavors and colors, may be used in icings, buttercreams, whipped cream, cake batters, chiffon and cream fillings. Icing and Filling Fruits are available in six flavors: cherry, lemon, orange, pineapple, raspberry, and strawberry. They have the added appeal of actual fruit, so that when spread through icings or doughs, the appearance is that of real fruit. One oz. of this filling will flavor 2 lb. icing. Cases may be ordered in assorted flavors.

Current promotion to the food service industry by the *American Sheep Producers Council* is "Mt. Vernon Prime Rib," which is described as a "prestige entrée." Made from the choice part of a selected rib section of lamb, it is said to have been a favorite in the old inns and mansions of George Washington's day. The Council has prepared a technical bulletin, "Developing a Specialty of the House with Mt. Vernon Prime Rib of Lamb," which includes suggestions for ordering, roasting, carving, and serving, as well as information about sauces, garnishes, and side dishes which are appropriate to serve with Mt. Vernon Prime Rib.

Dariworld is the name given to a new cheese developed at the University of Wisconsin and now being made available through the *Wisconsin Alumni Research Foundation* for commercial manufacture and distribution. Researchers responsible for the development of Dariworld are Professor W. V. Price and Dr. Donald Irvine of the University's Food Industries Department. Dariworld is a unique cheese in that it reaches its peak of good flavor within ten days to two weeks (contrasted to other cheeses which take from three months to a year) and thereafter maintains the same mild flavor level without change for an indefinite period (other cheeses continue to "age" and increase in flavor until they are no longer edible). Dariworld is a soft, smooth-bodied

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In Salt-Free Diets the danger is not from Salt alone.
The danger is from SODIUM in ANY FORM.

Diafoods® Soups are 100% Salt-Free and Guaranteed Low-Sodium

"Salt-free" soups...note low sodium content scientifically compounded under rigid laboratory control.

Every jar is laboratory tested and stamped with its exact sodium content.

VARIETIES		CALORIC VALUES PER 6 OZ. SERVING			MILLIGRAMS OF SODIUM PER 6 OZ. SERVING (Typical Values)
		Fats	Proteins	Carbohydrates	
LOW SODIUM CHICKEN SOUP BASE	SALT-FREE	10.1	2.4	13.8	1.45
LOW SODIUM BEEF SOUP BASE	SALT-FREE	8.0	3.7	13.0	12.8
LOW SODIUM CONSOMME	SALT-FREE	NEGLI-GIBLE	2.1	1.2	3.0
LOW SODIUM TOMATO SOUP	SALT-FREE	29.0	0.3	23.1	5.5

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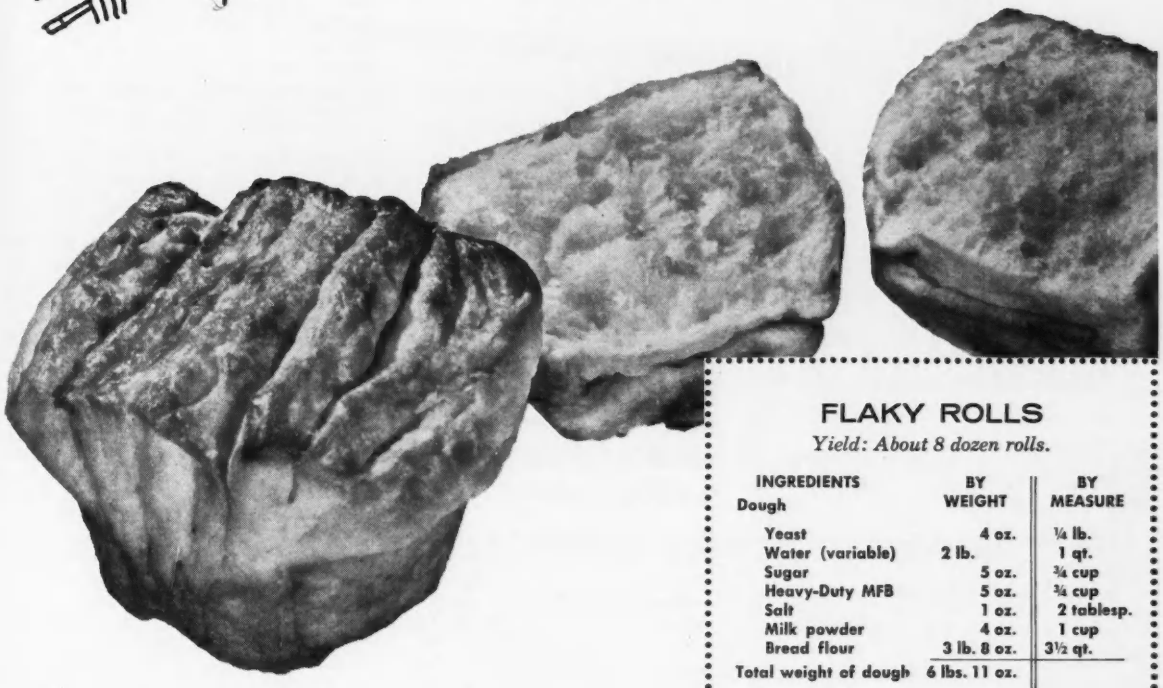
You can make news with your own *hot rolls*

Your meals can give them even more to talk about with this "extra touch." Serve your own delicious hot rolls made with Heavy-Duty **mfb**



FLAKY ROLLS

Yield: About 8 dozen rolls.

INGREDIENTS	BY WEIGHT	BY MEASURE
Dough		
Yeast	4 oz.	¼ lb.
Water (variable)	2 lb.	1 qt.
Sugar	5 oz.	¾ cup
Heavy-Duty MFB	5 oz.	¾ cup
Salt	1 oz.	2 tablesp.
Milk powder	4 oz.	1 cup
Bread flour	3 lb. 8 oz.	3½ qt.
Total weight of dough	6 lbs. 11 oz.	
Roll In		
Heavy-Duty MFB	1 lb. 4 oz.	3 cups
Salt	½ oz.	1 tablesp.

METHOD:

1. Dissolve yeast in water. Combine with next 5 ingredients. Mix on 2nd speed until smooth. Rest dough 10 minutes.
2. Roll dough in oblong shape ½ inch thick. Cover two-thirds of dough with "Roll In" consisting of 1¼ lb. MFB. Sprinkle with ½ oz. salt. Fold uncovered third of dough toward center. Then fold other third over it toward center.
3. Roll dough into ½-inch thick oblong and fold as before. Rest dough in refrigerator 15 to 20 minutes.
4. Again roll dough into ½-inch thick oblong and fold. Rest dough 10 minutes.
5. Roll dough out, cut lengthwise into 1-inch strips. Cut in 1½-inch pieces. Place with cut end up in greased muffin pans. Give full proof.
6. Bake at 390° to 400° about 20 minutes.

Just think. This delicate roll is made with Heavy-Duty MFB, the shortening that fries, fries, fries.

Quick Tips from Wesson's Shortening Headquarters for Baking Them Better

- Rolls baked with all-purpose Heavy-Duty MFB keep moist when re-warmed.
- Heavy-Duty MFB is fully hydrogenated for superlative lightness, high volume and tender texture.
- The flakiness, the wholesome fragrance — all-vegetable Heavy-Duty MFB is responsible for those too.

Shortening is no sideline with us . . .
That's why Heavy-Duty MFB does so much, much, MUCH.

The Wesson Oil People

Makers of Heavy-Duty MFB . . . Quik-Blend . . . Keap . . . Meedo . . . Quiko . . . Task

cheese with a high moisture content. Because of its uniformity of flavor and body, it is particularly suitable for use as the base material in cheese spreads. Sue Ann Food Products Corporation is already marketing a number of spreads, including roquefort, celery seed, ham, and salami, and the natural cheese should be available soon.

A recipe contest which will run through January 31, 1959, is being conducted by *The Quaker Oats Company* for food service operators. Prizes are ultra-modern kitchen equipment. The first prize winner may have his choice of a Raytheon Radarange, a Seco Suzanne automatic revolving portable display case, or a Middleby-Marshall revolving oven and refrigerated butter patty dispenser—or he may elect to take $3300 in cash. He may, in addition, choose between an RCA color television set, sterling silver flatware, an outboard motor, or $300 in cash for himself. The second prize will include comparable choices, and there will also be seventy-five third prizes consisting of a Cory coffee warmer and a portable radio. Contestants must send to Quaker Oats, on its entry form, their favorite recipes using one or more Quaker products.

Edward Don & Co. now has "Flash Wax," an aerosol polish that cleans, polishes, and restores as you dust. Just spray it on and wipe it off and a like-new luster is the result. Flash Wax contains carnauba wax and silicones and may be used on all finished surfaces—enamel, woodwork, marble, Formica, and stainless steel.

National Biscuit Company has devised a new sample assortment of Nabisco institutional products to show buyers of the company's products. The assortment contains samples of Ritz Crackers, Premium Saltine Crackers, Waverly Wafers, Dandy Oyster Crackers, Triscuit Wafers, and Cookie Treats. A booklet containing service suggestions, cost per-serving data, package descriptions, and other information comes with the assortment.

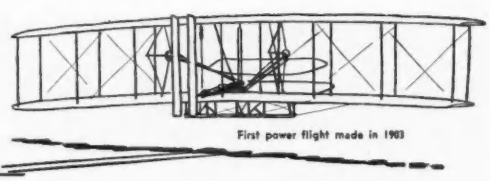
Seamless, all-welded, self-leveling mobile dispensers are new products manufactured by the *Lowerator Division, American Machine & Foundry Company*. Made of stainless steel, the new mobile dispensers are available in heated and unheated models for the transport of dishes, cups, and saucers. Cantilever-type units for cups and glasses are also available.

Wear-Ever Aluminum, Inc., is the new distributor of Auto-Lock and Amphion hospital trays which feature stainless steel legs that stay locked either in upright of folded position. The Auto-Lock trays are available in one size 20-1/2 by 15-1/4 in. in alumilite finish metal and in two colors of vinyl bonded to aluminum. The Amphion tray comes in the same size with the alumilite finish and in two colors of vinyl. A second size, 22-1/2 by 16-9/16 in., is available in alumilite finish only. The vinyl covered trays are especially suited for hospitals because they are quiet in use and are highly stain-resistant. China and glassware will not slide on the vinyl surface, minimizing breakage and spilling. The gray linen and sun tan finishes blend with most color schemes.

Wear-Ever Aluminum, Inc., has opened a new food service equipment research kitchen at New Kensington, Pennsylvania. Divided into three main work centers—ranges, kettles, and appliances—the research kitchen is equipped with the latest commercial appliances which are used in testing new Wear Ever utensils, equipment, and appliances. The new kitchen is under the supervision of Beverly Evans.

Carnation Company has developed a new, prepared evaporated milk formula—Carnalac. The ingredients used in the manufacture of the product are Carnation evaporated milk, maltose-dextrin syrup, and vitamin D. When diluted with an equal amount of water, Carnalac provides an evaporated milk-carbohydrate formula with 20 calories per ounce, closely approximating the typical evaporated milk formula prepared in the home. The product is homogenized to reduce the size of the fat globules, and the final formula is sterilized in hermetically-sealed containers for bacteriologic safety, soft-curd digestibility, and reduced allergenic properties. Al-

When the Wright Brothers made their first aeroplane flight, HERRICK refrigerators were already famous for keeping foods flavor-fresh.



First power flight made in 1903

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Provide the ultimate in MODERN FOOD PRESERVATION backed by 66 years of pioneering leadership

HERRICK Model RSS66
6-Door Remote Reach-In

When you buy HERRICK, you get the benefits of over half a century's experience in properly refrigerating foods. Highest quality materials, modern scientific design and fine craftsmanship combine to bring you lasting satisfaction. HERRICK provides complete food conditioning with just the right temperature and proper humidity to maintain peak freshness and flavor. You'll find HERRICK costs less by the year as the years go by. See HERRICK.

*Also available with white enamel finish

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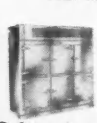
Super-Efficient Insulation—Semi-rigid Fiberglas, 2½-lb. density.

Adjustable Shelves — Easily changed to fit any specific need.

Automatic Slam-Shut Door Latches — Open effortlessly, close solidly.

Skilled Craftsmanship—Careful attention to the smallest detail.

SPECIFY HERRICK FOR MORE REAL VALUE PER DOLLAR



Refrigerators

Freezers

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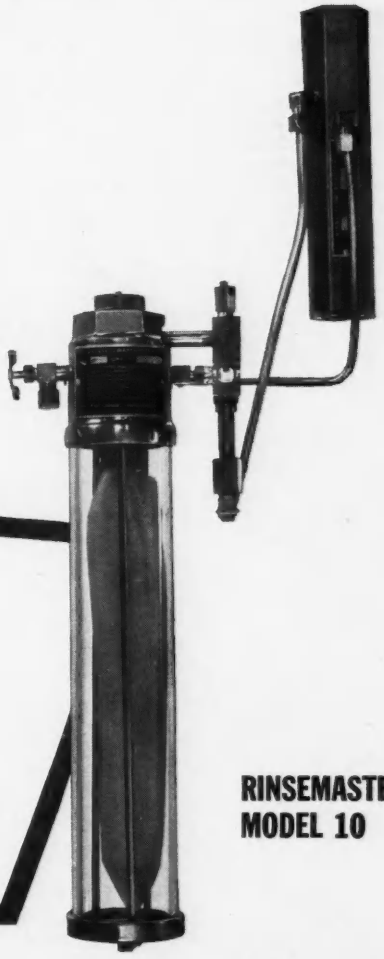
HERRICK REFRIGERATOR COMPANY Waterloo, Iowa
WRITE DEPT. D FOR NAME OF NEAREST HERRICK SUPPLIER

NEWEST ideas in automatic dishwashing



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FOR SPOT-FREE DISHES

new rinse injector with no moving parts

Here's a maintenance-free rinse injector that requires only one minor plumbing connection to install. *There are no motors, no pumps, no electrical connections, no clogging, no stoppages.* The only attention required is to re-fill with Zerospot additive. It's so easy, even unskilled help have no trouble.

But best of all, the Rinsemaster Model 10 will continue to deliver spot free dishes without towelling at a water pressure as low as 2.5 PSI *without any adjustment.* It is completely self-regulating to wide fluctuations in water pressure *and* rinse water flow.

DIVOMATIC MASTER 1000

FOR MINIMUM COMPOUND USAGE

new solution control sealed against moisture and vibration

All vital electronic elements are sealed in a tough, watertight epoxy resin block . . . there's not a chance that water, dust or vibration will interfere with its automatic operation.

The Divomatic Master 1000 measures solution strength continuously and adds compound only when needed. It will continue to operate at peak efficiency without attention because there are *no* delicate electronic tubes or extensive wiring that need frequent replacement or repair.

Inquire about the Divomatic Master and the Rinsemaster Model 10 soon and find out how they assure you spotless, appealing dishes.

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RINSEMASTER MODEL 10
DIVOMATIC MASTER 1000

though it has a fixed composition, the product has certain flexibility in concentration and amount of formula, which makes it possible to adjust it to various age groups.

Two new control instruments for dishwashing machines have been introduced by *Wyandotte Chemicals Corporation*—the Model 9E Electronic Solution Controller and Model K Control Meter. The Solution Controller, which automatically maintains dishwashing solutions at desired concentration, is 7 by 4 by 1 in. in size. A green light on the face of the Controller lights up when power is turned on, and a red light flashes on when the dispenser feeds detergent into solution. The Control Meter, which is used to direct the hand or mechanical feeding of detergent into solution, is 5 by 3 by 1½ in. It can be set for any concentration, adjusted to any water supply. An indicating needle on the dial tells whether the detergent solution is weak, okey, or too strong. It operates independently of the dishwashing machine on 110 volts, 60 cycle, AC current.

A low-cost line of all-aluminum mobile racks is being offered by *Crescent Metal Products, Inc.* Known as the Cres-Cor Models 207 and 217, the racks are available in three heights: 70-13/16, 60-9/16, and 35-15/16 in. with tray spacing 3 or 5-1/8 in. on centers. Capacities, depending on the height and spacing, are: 6, 10, 12, 16, or 20 trays of the standard 16 by 26 in. size. Five-in. rubber-tired casters make the racks easy to roll. One person can move a fully loaded rack. The weight of the largest rack is 45 lb. These racks are suitable for use in refrigerators, cold rooms, at bake ovens, at serving lines, and in areas where self-bussing is done.

A new one-cup version of the Glasbake Coffee Hottle—the "Hottle, Jr.," —has been introduced by the McKee Div., *Thatcher Glass Mfg. Co., Inc.* Like the regular two-cup Hottle, the "Hottle, Jr." is designed to rest in the coffee cup for tray service, to keep the coffee hot, and to prevent spilling. It holds 9 oz., has a steam-proof plastic collar, and is available in a wide choice of colors. Plastic stoppers or paper caps are optional.

Two new leaflets have come from the *Poultry and Egg National Board.* The first, "A Scientist Speaks About Eggs" is concerned with the cholesterol story as it affects eggs. A table giving essential nutrients in two shelled eggs is presented, as well as a comparative tabulation of fatty acids in eggs, poultry, dairy products, and some meats. One panel of this folder presents "egg facts." . . . The second publication is an eight-page leaflet titled, "Eggs Serve you . . . When You Serve Eggs." Designed as a quick guide for homemakers, it emphasizes the nutritional values of eggs in all meals and their benefits budget-wise, diet-wise, and time-wise in preparation. On one page is listed "A dozen ways . . . eggs serve you."

Garland and Magic Chef commercial-type broilers can be cleaned quickly and easily without removing the broiler rack from the broiler with a new, low-cost cleaning kit from *Tosmare, Incorporated.* The cleaning head on the steel scraper of the kit fits the top, side, and bottom of the broiler bars. An easy push-pull action guides the scraper along the broiler bars to do a thorough cleaning job. A twist of the wrist produces more pressure to quickly remove stubborn soil. The flat edge of the scraper is used for cleaning grills or scraping crumbs, grease, and sediment from the wall of the broiler into the grease pan. It may also be used to scrape range tops. The brush included in the kit is recommended for removing crumbs and other particles that result from the scraping operation. The bristles are spiral twisted wires mounted in the brush head, and the grooves, formed into the bristles of the brush head, fit broiler bars.

"Hawaiian Style" barbecue sauce, prepared with true fruit, has been put on the market by *Universal Foods Corporation.* The fruit in this barbecue sauce helps to impart a delicious flavor when combined with lamb, pork, beef, chicken, or fish. It may also be used on ribs, meat loaf, and sandwiches, or as a shrimp sauce. It is available in 1-gal. jugs, four jugs per case.

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Save Time!
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LOW SODIUM MILK
A Natural, Whole
LIQUID MILK
for salt-free diets!
Pour LOW SODIUM MILK right from the can to patient's glass. Save time because there's no mixing. And each glass is assured the same natural consistency. LOW SODIUM MILK can be used whenever a sodium restricted diet is indicated.
Low Sodium Milk fortifies the nutritional value of any diet for it contains many of the proteins, vitamins and minerals so essential for good health and growth.
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